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HOUSEHOLD
MANAGEMENT

TEGETMEIER

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THE HANDBOOK
OF
HOUSEHOLD MANAGEMENT
AND COOKERY

COMPILED AT THE REQUEST OF

The School Board for London

WITH AN APPENDIX OF RECIPES USED BY THE TEACHERS OF THE
NATIONAL SCHOOL OF COOKERY

BY

W. B. TEGETMEIER

AUTHOR OF "A MANUAL OF DOMESTIC ECONOMY"



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1894

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PREFACE.

THE present work was written at the request of THE SCHOOL BOARD FOR LONDON. It was designed to supply a want which has long been felt by practical teachers ; that of a handbook on the general principles on which the processes of Cookery and the sanitary management of a home depend.

No work on the subject at present exists which can be advantageously placed in the hands of the pupils in ordinary schools. A mere collection of recipes, however valuable in themselves, does not constitute a book fit for use in schools, where the pupils should be instructed in the first principles adapted to all cases, and not have the memory burdened by details applicable only to each individual case. The "Manual of Domestic Economy,"¹ published by the Author for the use of students in female Training Colleges, is adapted for the instruction of teachers, by whom it has been used with so

¹ "A Manual of Domestic Economy," by W. B. Tegetmeier. Tenth Edition. Hamilton and Adams, 1877.

much success that Her Majesty's Commissioners, appointed to Investigate the Education in Mining Districts, in their Report on the Industrial Schools founded by Messrs. Baird at the Iron Works at Gartsherrie, stated that "The girls, in three months, can be taught plain cooking, washing, and cleaning, enough to prepare them for service, or to make them useful to their mothers at home. They are all instructed in Tegetmeier's 'Domestic Economy' at school, so that their minds have been directed to many useful principles. On going to service after such a course, a girl would probably get 1*l.* more wages for the first half-year's service."

The value of the present work has been greatly increased by an Appendix of upwards of 150 recipes prepared for the use of those teachers of the NATIONAL TRAINING SCHOOL OF COOKERY, South Kensington, who inaugurated the teaching at the Cookery Centres, established by the SCHOOL BOARD FOR LONDON. For the permission to use these recipes the author has to express his sincere thanks.

Finchley, N.



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THE HANDBOOK OF HOUSEHOLD MANAGEMENT AND COOKERY.

PART I.—FOOD.

CHAPTER I.

THE NATURE AND USES OF FOOD.

1. **Milk** is almost the only example of a substance which is to be regarded as a naturally prepared food ; other articles of diet serve other purposes. Seeds grow, plants and animals live ; but milk is expressly formed for food, and for food alone.

2. The young animal fed on milk grows or increases in weight daily. It forms or secretes several substances, such as the saliva of the mouth, the bile of the liver, the tears from the eye, &c. ; it keeps itself warm, and exercises its strength in moving the limbs ; all of which it is enabled to accomplish only by means of materials derived from the milk which is its sole food.

3. Hence, as milk supplies every requisite for the body, and enables a young calf to grow into a heifer and a baby into a child, we may regard it as a model food ; it is, in fact, the most perfect food that exists in nature.

4. It is desirable, therefore, to examine milk and ascertain the materials of which it is composed. A very large proportion of milk consists of water, which is necessary to supply the fluids of the body.

The cream which rises to the top when the milk is allowed to stand at rest consists of fat, which is chiefly consumed or burnt away in breathing, and maintains the warmth natural to the young animal, and, like the coal in a steam-engine, is the source of the force or strength that it exercises ; when more cream is taken than is required for immediate use it is stored up in the body in the form of fat.

If milk is allowed to become sour the solid part separates in the form of curd. It is this portion which supplies the materials for the growth of the flesh, skin, hair, heart, lungs, &c., of the young animal, and for replacing the daily loss arising from the wearing out of the different parts of the body.

The whey, or liquid left after the separation of the curd, contains dissolved in it salt and other saline bodies necessary for digestion, and the earthy materials of which the bones are formed. It also contains some sugar, which acts like the cream in keeping up the warmth and maintaining the strength of the body.

5. In preparing our food we must endeavour to imitate as far as possible the composition of milk ; for any one simple substance, such as starch, arrow-root, fat, gelatine, &c., which only fulfils one of the

purposes required in our food will not alone support life; hence it is necessary we should arrange the articles of food according to their uses.

6. The substances that when eaten go to supply the materials of our bodies, and in this respect resemble the curd of the milk, are sometimes termed flesh-forming foods; and, from containing nitrogen, are sometimes called nitrogenous; but as they resemble white of egg (albumen) in many properties, they are better termed **albumenoid**, or albumen-like.

The most important albumenoid articles of our food are the solid parts of the flesh of animals, the curd of milk, which when dried becomes cheese, the albumen of eggs, gelatine, the gluten of flour, and the curdy matter that forms a large portion of many seeds, as peas, beans, &c.

7. The foods that are used to keep up the warmth natural to the body, and by being consumed in the breathing are the source of the strength we exercise, are sometimes termed warmth-giving foods; as they contain a great amount of carbon or charcoal they have also been termed carbonaceous; and as they resemble oil in being combustible they are frequently termed **oleaginous** foods.

The most important of these foods are fats, oils, starch, sugar, gum, and the softer and more digestible fibres of plants.

8. Many of the articles used as food do not contain a proper proportion of these two kinds of substances, and in economical cooking it is desirable that the defects in one article of diet should be supplied by using it with some other which contains that which is wanting in the first.

For example, rice and potatoes consist chiefly of starch, and of themselves are bad foods unless combined with fatty and albumenoid matters; therefore we endeavour to use rice in puddings with milk, eggs, and butter, which supply all that is wanting, and it thus becomes a valuable article of food. Potatoes are most useful and economical if eaten with milk, fat meats; alone they are barely able to support life and cannot sustain health and strength. Beans, which are chiefly albumenoid, are eaten with bacon. Bread, which is wanting in fat, with butter or bacon, &c. &c.

CHAPTER II.

MEAT: ITS COMPOSITION.

9. Meat, or the flesh of animals used for food, consists of several very distinct substances, each of which possesses different qualities. Some of these substances are hardened, others softened by heat; some dissolved, and others rendered tough by boiling water. It is therefore necessary to understand the nature of these different substances, in order to perform the different operations of cooking in the best and most economical manner.

10. If we take some small shreds of lean meat and wash them repeatedly in clean water, rubbing them at the same time, we shall wash away all the soluble part, and at last there will remain nothing but some white threads which constitute the fibrous part of the flesh of the animal from which they were obtained. We could in this manner obtain about fifteen pounds from every hundred pounds of flesh. This substance of which these threads are composed is termed fibrin; it is an albumenoid (6) article of food. Fibrin also exists dissolved in the blood of

living animals ; and when the fresh blood of a pig or other animal is stirred, as is done in making black puddings, the fibrin separates and adheres to the stick in long fibres.

The action of heat on fibrin is very important. It is hardened and contracted by a heat as great as that of boiling water : this is easily shown by pouring some perfectly boiling water on the threads obtained by washing meat, or by cutting a thin shred of meat in the direction of the fibres, boiling it for a few minutes, and then noticing the alteration in its size and the hardening it has undergone.

In water that is considerably less hot than boiling, the fibres of meat become soft, consequently any meat, even if old and tough, can be rendered useful for food by long continued stewing, at a heat much less than that of boiling water.

11. When meat is thoroughly washed to obtain the fibrin, a soluble substance, similar to the white of egg, passes away in the water ; this is termed **albumen**. There are from three to five pounds of albumen in every hundred of meat ; it also forms a very large proportion of the brain and of the blood. In cold or warm water it is easily dissolved, but if heated to near the boiling point of water it becomes solid. If a piece of fresh meat is suddenly plunged for a few minutes into water quite boiling, the albumen at the outside is hardened and becoming solid prevents the escape of the juices which form the gravy. Exposed to a heat greater than that of boiling water albumen becomes very horny and indigestible, but when properly cooked it is one of the most valuable articles of diet.

12. The tendinous or gristly parts of the flesh, such as cow's heel, the sinewy parts about the joints, also the skin and the nutritive parts of the bones, consist chiefly of a peculiar substance termed **gelatin**. This is a valuable albumenoid article of food when used with other substances. Gelatin and gelatinous articles of food may be dissolved by boiling, and the solution becomes a jelly when cold. Gelatin is rendered hard and horny by a dry heat, and therefore the sinewy and tendinous parts of meat are better adapted for stewing or boiling, than for roasting, broiling, or frying.

13. If a quantity of lean meat be chopped up small, and placed in a closely-covered earthen pot, without water, and the pot be then put in a saucepan of water by the side of the fire so as to be very gradually heated, the **juice of the flesh** will escape. At first this will be of a red colour, being tinged with a little blood, but if heated to a greater degree it will become brown.

The juice of the flesh contains many substances of the greatest value as food, and meat from which it is extracted is of very inferior value.

All operations of cookery should be conducted so as to prevent as far as possible any loss of this valuable fluid. When meat is salted a large proportion of the juice of the flesh is extracted and forms the brine. This contains so much albumen as to become partly solid if heated. It is from the loss of this valuable juice that salted meats are so much less nutritious and wholesome than those that are used in a fresh state. What is termed extract of meat is merely the juice of the flesh from which the water has been evaporated so that it is nearly solid.

14. Almost all flesh used for food contains a considerable proportion of fat, which when eaten maintains the warmth of the body. Hence we have a much greater appetite for fat in cold seasons and climates than in those that are warm. Fat is one of the oleaginous foods (7) which are the source of the force we exert ; it is also essential to the proper action of the digestive organs. When taken in too great a quantity it accumulates in the body, which thus becomes fatted.

15. The quantity and quality of these different substances vary very much in the different kinds of meat. The flesh of very young animals is not nearly so nutritious as that of those which are of mature age. Lamb and veal contain much less solid food than mutton or beef, and are consequently not so economical, even if purchased at the same cost per pound. Mutton, if in good condition, is one of the most easily digested of the ordinary flesh meats. Pork is not so easily digested as beef or mutton, consequently is unfitted for sick persons, and from the unwholesome manner in which pigs are often kept, is more subject to be diseased than the flesh of sheep or oxen.

16. Some of the internal parts of animals are exceedingly useful as food. The stomach of the ox when cleaned and partially boiled is sold as tripe, an easily digestible and nutritious food. In the tongue the fibres of the flesh are very small and delicate, and if stewed slowly, become very soft and digestible ; but tongues are frequently much hardened by salting for a long time. The flesh of the heart of the ox and of the sheep is very firm and solid, and though nutritious, is not very easily digested. Kidney and liver,

except in the case of those of young animals, are also hard and firm when cooked, and are not very digestible. The brain consists chiefly of albumen and water, and if properly prepared is a useful food. The blood contains a very large proportion of nutritive albumenoid substances, but it is not a favourite food, and except in the form of "black puddings," which are made from the blood of the pig, is rarely used in this country.

CHAPTER III.

MEAT: THE PROCESSES OF COOKERY.

17. **Roasting** is a mode of cooking meat that is more common in this than in any other country. It is, however, not an economical or advantageous mode of cooking small joints, as they become dried up ; and it is exceedingly wasteful in the case of sinewy or tendinous pieces of meat, as it renders a very large proportion of them quite uneatable. Roasting is an advantageous mode of cooking only in cases where the joints are large and where the cost of a large fire is not of importance. Consequently it is not the best suited to the circumstances of the working classes.

When a piece of meat is hung before a fire, part of the fat melts and forms the dripping which should be carefully and cleanly preserved, as it constitutes a valuable article of food. During the process some of the water of the juice of the flesh is dried up ; from these two causes the meat loses in weight. In some fat joints more than one quarter of the weight is lost, in others much less, as in the case of a leg of mutton which is covered by a skin, and has but little fat to melt away.

To roast well the meat should be hung up before a brisk bright fire, the first effect of which is to harden the albumen in the outer parts and thus prevent the escape of the nutritious juices. The heat should then be continued until it has penetrated the inside. When it is heated the natural red colour of the flesh is changed, and from the hardening of the albumen the meat becomes firm and can be cut in thin slices.

Underdone meat is not, as is generally supposed, more nutritious than that which is properly cooked.

The heat of the fire causes the production of peculiar flavours and odours which distinguish one kind of meat from another.

18. In roasting it is important that the meat be put down before a bright, clear fire, sufficiently large to heat the whole of the joint at once. If possible, skewers and spits should not be thrust into the meat, as they make holes through which the gravy escapes. The time usually allowed for roasting is a quarter of an hour or twenty-minutes for every pound, but this depends on the thickness and also on the size of the joint.

The usual plan of making gravy for roast meat is, to sprinkle a little salt on the joint after it is placed in the dish, and then pour some boiling water over it; this washes off some of the brown and makes a coloured liquid in the dish.

A much better plan is to collect the dripping in a flat pan, and when the meat is dished to leave as much as may be required for making the gravy; and then to dredge in some flour and place the pan over the fire or stove until the flour is browned. A little cold water is next added, which is to be well mixed with the brown

flour so as to avoid leaving any lumps. Boiling water, or still better, broth made by stewing any scraps of bones from the joint, is then poured on in sufficient quantity, the whole being constantly stirred ; the whole is allowed to boil for a few minutes and poured over the joint. In this manner a large quantity of very good, rich, nutritious gravy is produced which is very economical, as it renders potatoes and other vegetables much more acceptable, especially to children, and in this mode saves the consumption of meat.

If a joint is to be eaten cold it is better that it should not be cut whilst warm, as the contraction of the fibres forces out the gravy; but if not cut until cold the gravy is retained and the meat is much more tasty and tender.

19. **Baking** is a more economical mode of cooking than roasting, especially in small families where economical stoves or ranges with side ovens are used. In baking there is less loss of weight than in roasting as the joint is less dried. Care should be taken that the floor of the oven is not too much heated or the fat may be burnt, which causes a bad flavour. A great advantage in baking is that it requires less attention than roasting, and that potatoes, or a batter or Yorkshire pudding, can be cooked under the meat. This latter may be made by taking four tablespoonfuls of flour, and rubbing them into a smooth batter with a pint of milk, which has previously had a well-beaten egg mixed with it. If eggs are abundant two or three may be employed with advantage, the quantity of flour being lessened. The milk and egg must be added gradually, the batter being rubbed until uniformly smooth after each addition.

20. **Broiling** is the rapid cooking of a small piece of meat, as a chop or a steak, by exposing it to the heat of a fire; in large kitchens the gridiron on which the meat is cooked is usually placed over a large, clear fire, but in smaller houses it is generally hung up before the fire. Broiling has very nearly the same effect on meat as roasting. The albumen of the outer portions is hardened, and forms a kind of skin retaining the juices.

In order that this may be done most perfectly, the meat should be rapidly turned so as to prevent the juices escaping on the side furthest from the fire. A fork should not be thrust into the flesh, as it makes holes through which the juices escape.

In large chop-houses, the chops are turned over very quickly with broiling-tongs.

Broiling is a good mode of cooking thick fleshy chops and steaks, but is a wasteful method of preparing thin pieces such as are often purchased when cheap meat is required.

Success in broiling depends on having a thick, fleshy piece of tender meat, a clear fire, a clean gridiron, and on the meat being turned repeatedly. Broiled meat should not be sprinkled with salt until after it is cooked, and it should never be cut into in order to ascertain whether it is done; as if again put down to the fire the juice escapes from the cut, and the meat becomes dry and much less nutritious.

21. **Frying** is the cooking of meat in melted fat heated in a frying or stew-pan over a fire or stove.

If the frying-pan is placed over an open fire, the fat is usually over-heated, and gives out a very disagreeable smell; meat when placed in overheated fat has

its fibrin hardened and contracted, so that it becomes very tough ; therefore fried meat is usually regarded as inferior to such as is broiled.

If, however, the fat is not over-heated, and there is sufficient to prevent burning, and to cover the piece to be cooked, meat may be fried of a very light brown colour without being hardened.

22. Boiling may be performed in various modes. If the joint is put in cold water and placed on the fire, and the heat very slowly raised to the boiling-point, after which the saucepan is pulled back from the fire so as to be kept hot without boiling until the joint is thoroughly done ; the meat will be tender in proportion to the length of time and slowness with which it has been cooked, but a considerable proportion of the gelatin and albumen will be dissolved in the water, and unless this be used for soup or broth will be wasted.

This dissolved albumen coagulates or hardens as the water approaches the boiling-point, and forms the scum, which should be removed by skimming just before the water boils, or it is carried down by the boiling and discolours the meat.

A different mode of boiling is sometimes adopted when the liquor is not required for soup. It is to place the joint in perfectly boiling water for a quarter of an hour ; this hardens the outside and prevents the escape of the nutritious juices ; the water is then cooled, either by adding a quantity of cold water or by drawing the vessel back from the fire, and the process continued at a low heat until the whole is thoroughly cooked.

If the water is made to boil during the whole time

the meat is being cooked, the fibrin is rendered hard, and the meat becomes tough and stringy.

To have meat tender it is important not to expose it to the heat of boiling water for any length of time. In what is termed a Norwegian kitchener the water in which the meat is placed is made to boil. Then the vessel is placed in a box thickly lined with layers of woollen felt ; this prevents the escape of the heat, and the largest joints will be perfectly and most tenderly cooked after having been taken away from the fire for three or four hours.

In all cases of boiling it is desirable to avoid thrusting a large fork or skewers into the joint, as these, by passing into the interior where the albumen is not hardened, make holes through which the juice escapes, and the meat becomes dry and less nutritious. If necessary, it is better to tie the joint round with string than to employ skewers.

Ham and the lean of bacon, which is usually hard and tough, may be cooked so as to be perfectly tender and without waste of fat, by not allowing the water to boil. At the large ham and beef shops in London, where the meat is always very tender, the hams are placed in large coppers of cold water, a small fire is lighted under the copper, and the water gradually raised to the boiling-point, when the fire is immediately raked out, the copper covered over, and the hams allowed to remain in the water until it is nearly cold. In this manner they are several hours in cooking, and are never heated to the boiling-point, consequently the flesh becomes exceedingly tender, and there is no loss of fat.

23. Stewing is a much more advantageous and

economical mode of cooking than boiling : by its use the flesh of old animals, and tough, sinewy joints that would otherwise be wasted, can be used for food. Stewing consists in cooking meat in a small quantity of liquid, by a very moderate heat, which is continued for a very considerable time. By this long-continued action of a gentle heat the fibres are softened and the toughest joints become tender and eatable. In cooking meat by stewing it must be remembered that length of time is much more important than extra heat ; and that the cooking of the food cannot be hastened by increasing the heat, which if raised to the boiling-point only hardens the fibres and renders the meat tough.

In the houses of the working classes in England stewing is not so much employed as it should be. By its use small pieces of meat may be cooked with vegetables, and made into the most savoury and nourishing dishes, and the coarsest and cheapest joints may be made almost equal in flavour and quite as nutritious as the dearest.

The stews best known in this country are stewed steak, haricot mutton, Irish stew, and jugged hare. The value of these is recognized, and it is only prejudice or ignorance which prevents the English housewife applying the same mode of cooking to other joints, and using the French plan of always having a stewing pipkin or *pot-au-feu* by the side of the fire.

24. As examples of different modes of stewing, the following recipes are given :—

Stewed Steak.—Take a clean, well-tinned stewpan, which is much better for the purpose than an

ordinary saucepan, put in a little butter or dripping, and melt it; then place in the steak, cut into conveniently sized pieces, and fry each of a very light brown, frying a sliced onion at the same time; when sufficiently fried, add the seasoning, such as pepper and salt. The salt must not be added at first, as it would draw out the gravy and prevent the meat browning. The meat should then be barely covered with cold water and allowed to stew slowly for four or five hours, the greatest care being taken that it does not boil.

The vegetables, such as turnip, carrot, celery, &c., should be cut up and boiled in a separate saucepan of water until tender, and them added to the stewed meat. The object of cooking the vegetables separately is to prevent the necessity of boiling the meat, which would harden it. Half an hour before serving, add a little flour and water, mixed into a very thin paste, and let the stew just simmer so as to thicken the gravy.

Haricot Mutton is made in precisely the same manner, using small cutlets from the neck of mutton instead of steak.

Irish Stew is a popular dish; it is usually made by placing in a stew-pan alternate layers of pieces of mutton and sliced potatoes and onions, with pepper and salt, barely covering them with water, and allowing the whole to stew for some hours. If a large quantity of potatoes are required, it is desirable to partially boil some small ones and place them on the top of the stew half an hour or more before serving, as they then become perfectly cooked and acquire the flavour of the stew. If too many potatoes are added at first, so much water is required to cover them that the stew is spoiled.

Jugged Hare is a very good example of the utility of stewing. If a hare is too old and tough to be eaten when roasted, it is cut up and placed in an earthenware vessel with a little bacon, onions, cloves, lemon peel, sweet herbs, pepper and salt, and a little water ; the earthen jar is then to be very closely covered over and placed in a large saucepan of cold water, taking care the water is not sufficiently high to run into the jar. The saucepan is allowed to boil for four hours, or the jar may be placed in a very slow oven. Before serving, the gravy is thickened by adding a little flour and water.

Stewed Rabbits.—A very economical and useful mode of cooking rabbits is used in Spain. Alternate layers of pieces of rabbits and sliced onions are placed with a little seasoning and flour in a stew-pan without any water, the whole is closely covered down, and placed by the side of the fire for three or four hours.

Vinegar is sometimes used in the preparation of stews, as directed in the following recipe, which, if strictly followed, produces a most excellent dish :—

“ Take shin or leg of beef, cut it into slices or pieces of two or three ounces each ; dip it in good vinegar, and with or without onions, or any other flavouring or vegetable substances, put it in a stew-pan, and *without water*, let it stand on a stew-hearth, or by a slow fire for four or six hours, when it will be thoroughly done, will have yielded plenty of gravy, and be perfectly tender. Great care must be taken that the heat is sufficiently moderate. Leg or shin of beef makes the richest and most nutritious stew, and may be had at a low price ; but any other meat

or fish may be so dressed. A pound and a half of leg of beef, without bone, so dressed, and plenty of potatoes, will dine four people luxuriously."

25. **The Stewing Pipkin** or *Pot-au-feu* is the general mode of cooking amongst the working classes in France. Its use effects a great saving of fuel, trouble, and skill. Carême, one of the most celebrated French cooks, gives the following directions :—

"The good housewife puts her meat into an earthen pot, and pours cold water on it, in the proportion of two quarts to three pounds of the beef. She sets it at the side of the fire.

"The pot grows gradually hot, and as the water heats it dilates the muscular fibres of the flesh by dissolving the gelatinous matter which covers them, and allows the albumen to detach itself easily, and rise to the surface of the water in light foam or scum, while the savoury juice of the meat, dissolving little by little, adds flavour to the broth.

"By this simple proceeding of *slow* cooking, the housewife obtains a savoury and nourishing broth, and tender boiled meat, and with a good flavour. But by placing the *pot-au-feu* on too hot a fire, it boils too soon ; the albumen coagulates and the fibre hardens ; the sad result is that you have only a hard piece of boiled meat, and a broth without flavour or goodness. A little fresh water poured into the pot at intervals helps the scum to rise more abundantly."

Whatever vegetables are in season may be added to the stewing-pot, as celery, onions, carrots, turnips, and salt, pepper, and sweet herbs. The broth may be poured over toasted bread, or rice or Scotch barley may be added so as to make it more nutritious.

The great precaution to be taken in stewing is not to allow the heat to rise too high. This is quite prevented in Captain Warren's cooking-pots. These consist of one saucepan within another, like a carpenter's glue-pot, the outer being filled with water. By this arrangement the inner cannot become overheated to the boiling point; consequently the meat is cooked slowly and without becoming hard. In Warren's cooking-pots, meat, fowls, ham, bacon, &c., can all be cooked perfectly without any water being placed in the inner vessel, so that the whole of the gravy flowing from the meat is preserved in the richest form.

26. **Soups and Broths** are not so generally used among the working classes in this country as is desirable. They furnish, when properly prepared, very economical and nutritive articles of food.

Pea Soup is that which is most generally used in England. It may be prepared either with or without meat; the latter is hardly required, except for the flavour, as the peas are remarkably rich in albumenoid substances. The following directions may be followed. Soak a quart of split peas over night, place them in a stewpan with half a pound of lean bacon, or some bones from roast meat broken small, and three quarts of cold water, or the liquor in which some fresh meat has been boiled; place on a very slow fire and add celery, onions, and sweet herbs, and simmer for two or three hours until the peas and vegetables are sufficiently soft to pass through a colander, when pepper and salt should be added and the whole reheated, and eaten with toasted bread cut into small square pieces. If no meat can be obtained

the soup may be rendered much more savoury by frying the onions and celery in a little dripping before adding them to the soup ; and if dripping is plentiful, the bread may be fried instead of toasted.

Scotch Broth is very generally used among the middle and working classes in Scotland. It is very economical, as both broth and meat are used. The following are the directions : Put into a pot three quarts of cold water, along with a cupful of Scotch barley, and let it boil. Add two pounds of neck of mutton. Allow it to stew gently for an hour, skimming occasionally. Then add turnips cut in squares, and onions sliced, and carrots and turnips uncut. The half of a small cabbage chopped in moderately sized pieces may be put in instead of all these vegetables, and leeks may be used instead of onions. Stew the whole for an hour longer. The broth is now ready. Season with salt, and serve in a tureen. The meat is served in a separate dish, with the uncut pieces of turnip and carrot, and a little of the broth as gravy. Any meat may be employed in the same way, which is not unlike that followed in preparing the French *Pot au feu* (25).

27. **Salting Meat** is in most cases a very wasteful process ; salt when applied to fresh meat extracts a very large proportion of the nutritious juice of the flesh, and at the same time hardens the fibres and renders them much less easily digestible. The brine that runs from salted meat contains so much nutritious albumen that it becomes nearly solid on being heated, and as there is no means of extracting the salt, it is necessarily wasted.

The salting of meat before cooking is an English

prejudice which is not followed in any other country, nor is there any good reason why beef and pork should be salted before boiling, and mutton and veal boiled without salting. The plan followed on the Continent of slowly stewing a joint of beef without first salting it, yields a much more nutritious, tender, and well flavoured food.

In cases where it is necessary to preserve meat, as on shipboard, salting may be useful, but health cannot be preserved for any length of time on meat from which the most valuable part, the nutritious juice, has been extracted by salting.

In the case of very fat meats, as bacon, salting is not objectionable, as in them the most valuable constituent is the fat, which is not injured by the process.

In the case of ham a peculiar flavour is produced during the process of salting which is highly esteemed, but it should be remembered that the value of the flesh of ham as food is very much less than that of the meat from which it is produced.

28. Preserved Meats.—The meats imported in tins from Australia and South America are exceedingly valuable articles of diet ; and are at the present time much cheaper than fresh butcher's meat. The only drawback to their value is that they are rather overcooked in the process for preparing them, it is therefore more advantageous to use them cold than in any other manner.

29. Extract of Meat.—The extracts of meat sold in small jars are merely the juice of the flesh evaporated till it becomes nearly dry. It is useful as means of making beef tea or soup quickly, but is by no means an economical article of food.

Beef-tea, which is so valuable in cases of illness, is usually made by boiling the meat in water; this is a very bad plan, as the fibres are hardened, and the soluble portions less readily extracted. It should be made by pouring a pint of cold water on half-a-pound of finely-cut or chopped lean beef, and then placing it, in a covered earthenware vessel, by the side of the fire for an hour or two. By this means the whole of the soluble nutritious portions are extracted and the insoluble fibre alone remains. A small quantity of salt and two or three cloves greatly improve the flavour.

CHAPTER IV.

FISH: ITS VALUE AS FOOD, AND COOKERY.

30. **Fish** although of great importance as yielding a cheap supply of nutritious and easily digested animal food, is not equal in value to the same weight of meat, as it contains a much larger proportion of water and less solid material.

Fish usually contain a very considerable proportion of oil, in some kinds, as herrings, sprats, pilchards, salmon, eels, mackerel, this is found in all parts of the body, whilst in others, which are usually termed white fish, the oil is contained in the liver, and the rest of the body is almost entirely free from it. Such is the case in cod, haddock, whiting, soles, plaice, flounders, &c.

The fibre of the flesh of fish is very digestible, and the juice though more watery than that of meat is of considerable nutritive value. When boiled, a large proportion of this escapes into the water and is lost; hence though so frequently practised, boiling is not the most economical or advantageous mode of cooking fish.

31. **Salting**, though often necessary to preserve fish when caught in large quantities, is not a desirable mode of preparing white fish. It extracts a very large proportion of the nourishment and hardens the fibrin ; and if the salt has to be extracted by soaking in water before cooking, as in the case of salt cod, very little nourishment remains. The fat of the oily fish, as herrings, &c., is not removed by salting ; hence they are very valuable as food when preserved in this manner.

32. The most advantageous modes of cooking fish are those that retain the whole of the nutritious portions. A plaice or a sole placed on a buttered dish covered over with a few bread-crumbs and seasoning and baked retains the whole of the nutriment, and furnishes a much more savoury meal than if boiled.

The following recipes give directions for the economical and advantageous cooking of fish.

Baked Fish.—Almost any kind of fish, as mackerel, haddock, whiting, soles &c. may be cooked by being placed in a dish with bread crumbs, a little chopped parsley, and other seasoning, as pepper, salt, a few sliced onions, if desired, and baked in a side oven. The more oily fish, as herrings, pilchards, sprats, may be packed closed in a deep earthenware dish, seasoned with pepper and salt, covered with vinegar and cooked perfectly even by the side of the fire. Fish prepared in either of these modes, are very good to eat cold, and as they will keep good for some days furnish very useful and cheap articles of food. Broiling fish is an excellent mode of cooking them, there is no loss of nourishment and the flavour is much better than when they are boiled. A broiled mackerel, &c., is a much more substantial meal than one that has been

cooked by boiling, and no sauce is required to be prepared.

Frying is a useful mode of preparing fish, especially soles, whittings, plaice, cod, and other white fish. The chief precautions are to dry them thoroughly, either to flour or dip them in a thin batter made of flour and water, and fry in a deep pan with sufficient fat or dripping to cover them if possible, and to take care that the heat is not so great as to burn the fish, which should be of a light brown colour.

Fish soups are largely used in some countries. In the Channel Islands a very good and nutritious soup is made of conger-eel according to the following directions :—

Cut up a moderate sized conger-eel in a stewpan with three or four quarts of water, and let it simmer two or three hours till it breaks to pieces. Rub it through a sieve, and pour back into the stewpan with a little butter. Throw in a small leek, the white heart of a cabbage cut up, some parsley chopped small, and a bunch of thyme. Mix two table-spoonfuls of flour in a pint of milk, and when the cabbage is done, throw it into the stewpan, stirring all the time, till it comes to a boil ; then let it boil ten minutes to take off the rawness of the flour. Before dishing up, season with a little salt, as the salt is apt to curdle the milk if added before. Have ready thin slices of bread in your tureen, and pour the soup over.

CHAPTER V.

EGGS: THEIR COMPOSITION, VALUE AS FOOD, AND COOKERY.

33. Eggs contain two distinct substances, the **white** and the **yolk**. The solid part of the **white** is almost entirely albumen which forms fifteen parts out of every 100, the remaining eighty-five parts being water. Albumen is a valuable flesh-forming food and gives its name, *albumenoid*, or albumen-like, to the class of foods to which it belongs. It possesses peculiar properties, it dissolves in cold or warm water, but in the white of egg it is in layers like those of an onion, and these require to be broken up by beating before the albumen can be dissolved.

If the beating is long continued a glairy fluid is formed in which large quantities of air are contained in bubbles; when used in pastry in this state eggs add very much to the lightness or sponginess of the mass.

Heated to a point many degrees below that of boiling water the albumen hardens, becoming solid and of an opaque white, hence its name from the Latin word, *albus*, white.

When an egg is boiled very hard and allowed to

become cold, the solid albumen may be separated into the layers of which it consists.

The **yolk** contains a considerable quantity of albumen, with nearly a third of its weight of oil, and a very large proportion of sulphur and other mineral matters. It is the sulphur which causes eggs to tarnish silver, and produces their exceedingly offensive smell when rotten.

34. The value of eggs as food is very great. Like milk, they contain all the materials required for the growth of the body. The entire of the young chick, its bones, down or feathers, skin, internal organs, and flesh are formed out of the materials contained in the egg, which must therefore contain every substance required for the support of the body.

35. The usefulness of eggs as food depends very greatly upon the mode of cooking. When boiled in the shell the outer portion of the white becomes much hardened, and is of so solid a character, being quite destitute of pores, that it is digested with extreme slowness, and hence is not fitted for children or persons of weak digestion. Eggs may be boiled so as to render them much less difficult of digestion by placing them in a saucepan of cold water, making it boil, and then allowing the eggs to remain a few minutes in the saucepan after it has been removed from the fire, the time they have to remain in the boiling water varies with that required to make the water boil.

Poached eggs, if well prepared, are much less hardened. The usual plan is to break each egg separately into a tea-cup and pour it with the yolk unbroken into a frying-pan or shallow stewpan of boiling

water, removing it with a skimmer as soon as the white is set. Prepared in this mode the egg is much more quickly cooked and the albumen less hardened than in the process of boiling.

In frying, eggs are exposed to a very high temperature, and the thin edges of the white become very horny and quite indigestible.

A much better plan is to cook the eggs on a plate on which a little butter, pepper and salt have been placed ; this is first heated by the side of the fire or on the stove, and when the butter is melted the eggs are broken on to the plate and cooked by a gentle heat.

Omelettes, which consist of eggs beaten up with flavouring and other ingredients and fried very lightly, are most valuable articles of food that are not properly appreciated in this country. An omelette with herbs may be made by melting a little butter in a small frying pan, beating up three or four eggs with a dessert-spoonful of milk, a little chopped parsley, pepper and salt, pouring it into the frying-pan and stirring till it thickens, then allowing it to remain for a few moments until it is firm, the pan being sharply shaken so as to prevent the omelette sticking to the bottom.

Sweet omelettes are made by the addition of sugar instead of herbs, pepper, &c. Cheese omelettes by the addition of grated cheese, &c.

Custard, which consists of eggs beaten up mixed with milk sweetened and set in a slow oven, is one of the most easily digested and nutritive articles of food, especially adapted for children and invalids.

The use of eggs in pastry and cakes depends partly on their nutritive value and partly on their rendering

the paste more tenacious and so retaining the gases and vapour that by expanding make the paste light in the process of cooking.

The preparations sold under the name of egg-powders consist merely of chemical substances that give out a gas when moistened. They help to render the dough light, but have no nutritive value whatever.

36. Preserving Eggs.—As eggs are produced in large numbers in spring and summer, it is desirable to preserve them for winter use. They may be kept good for many weeks by closing the pores of the shells, by rubbing them with a little melted lard as soon as they are laid, or they may be packed in a vessel and a mixture of freshly-slaked lime in water, mixed to the thickness of thin cream, poured over them. This method will keep them, if fresh when laid down, for many months, but it unfortunately renders the shells very brittle.

37. From the great value of eggs many persons are tempted to keep fowls in a confined space ; but this plan cannot be recommended, as after a few weeks the ground becomes tainted, the hens become diseased, and cease to lay. But a few hens can always be kept to great profit on the waste house scraps and a little corn, provided they have a free range and can obtain a supply of worms and insects.

CHAPTER VI.

MILK: ITS CONSTITUENTS AND PRODUCTS— BUTTER AND CHEESE.

38. Milk, as it is obtained fresh from the cow, is a white fluid, having a slight smell and taste. It consists of several distinct substances, which partly separate from one another on its being allowed to remain at rest. These are **Cream**, **Curd**, and **Whey**, the last consisting of water, which contains dissolved in it the **Sugar of Milk**, and the saline and earthy minerals necessary to supply the saline materials of the blood, and those required for the growth of the bones.

39. The **Cream** is formed of very small globules of butter, invisible to the naked eye, but readily seen with the aid of a microscope; each of these globules is surrounded by a very fine skin of curd. They are dispersed in the milk when it is first drawn from the cow, but as they are lighter than the whey, they slowly rise to the top when the milk is allowed to rest, and form the cream. This rising takes place more quickly in warm than in cold weather. A larger quantity reaches the top if the milk is placed in

very shallow pans than if it is in vessels several inches in depth. The quantity of cream varies considerably; some cows give milk much richer in cream than others. The quality of the food on which they are fed also affects the quantity of the cream. Cows feeding in rich pastures give richer milk than those that graze on poor land; and if they are fed upon oil-cake, &c., the amount is greatly increased. The quantity of cream is usually about 10 per cent., but is much lessened if the cows are driven a long distance daily, and also by exposure to cold weather; in the first case the cream is consumed in producing the force the animal exercises in walking, and in the second by generating the heat necessary to resist the cold (4).

40. Clotted Cream.—The rising of the cream can be hastened by heat, which causes it to separate in a much more solid form, when it is called clotted cream.

The milk, after standing ten or twelve hours in a flat metal milk-pan, is placed, without disturbing the cream that has risen, over a stove or clear fire, until a thick scum or cake rises to the surface; a small portion of this is gently removed with the finger from time to time, and when a few small air-bubbles are seen underneath, the whole is immediately removed from the fire, and allowed to stand twenty-four hours. The cream thus obtained is much more solid than usual; it can be gathered off the milk with the fingers, and butter is easily made from it by stirring for a few minutes with the hand. This cream, which is called scalded or clotted cream, will keep several days without turning sour. It, however, requires to be carefully made;

for if the milk is allowed to remain on the fire after the bubbles appear beneath the cake of cream the process fails.

The plan of scalding the cream is very useful in small dairies, where only one or two cows are kept, as the cream keeps much longer without becoming sour, and may be kept until a sufficient quantity is collected to make it into butter.

41. **Skimmed Milk.**—The milk remaining after the cream has been removed is termed skimmed milk. If used before it becomes sour it is of great value as food; where new milk cannot be obtained, its use is of very great importance; for puddings it is almost equal to fresh milk, as the place of the cream that has been removed can be supplied by adding half an ounce of suet or dripping to every pint of milk. When fresh milk cannot be obtained for children, the use of good skimmed milk is of the greatest benefit. It is sometimes the case that the skimmed milk has been so long kept, that, although not sour, it will curdle when heated. This may be prevented by adding a pinch of common carbonate of soda to it before boiling; and in the same manner unskimmed milk that is "*on the turn*" may be boiled for bread and milk or puddings, without curdling, by the use of a very small quantity of carbonate of soda.

42. The **Curd** which is dissolved both in milk and in skimmed milk separates in a solid form as they become sour. The quantity of curd, like that of the cream, varies considerably in different samples of milk. The curd when separated from the milk by the use of rennet (a fluid obtained by soaking in water the digestive stomach of the calf), and pressed

out and dried, forms cheese, which varies very much in quality and in its value as food. Cheese made from fresh milk contains nearly the whole of the cream, and is more digestible and useful as food than that which is made from skimmed milk, which is very hard and digested with difficulty, although it contains a great amount of albumenoid substances. In all situations in which milk can be obtained, it is far preferable to use it as food in a fresh state than to employ the cheese obtained from it. The whey which remains after the separation of the curd contains the sugar of milk and the mineral ingredients. Where neither fresh nor skimmed milk can be procured, whey is a useful article of food.

43. Butter is obtained from cream by the operation of churning; during this the thin skin of curd surrounding each globule of butter is broken, and the butter unites into a solid mass. Sometimes the butter refuses to "come;" this usually arises from the temperature being either too high or too low. Butter can be obtained most readily from either milk or cream at a temperature of 60° Fahrenheit, and cold or warm water should be added to the cream or milk, so as to obtain that degree of heat. When churned, the butter should be well washed, so as to remove every trace of curd, which, if left, soon putrefies and renders it rancid, and then salted.

Butter may be made from scalded or clotted cream by stirring briskly with the hand for a few minutes.

Butter is an expensive article of food, and its value is no greater than that of any other soft fat, such as dripping, lard, or the melted fat of good

bacon. Hence, where economy is an object, these may be advantageously substituted for it.

44. The use of milk for food is not sufficiently valued in this country. Young children can hardly be reared in health without it. When first swallowed it is made into a soft curd by the acids of the stomach, and in this state is readily digested. In dairy countries skimmed milk should be largely used by those children whose parents are unable to obtain fresh milk, as it is, if not sour, the cheapest form in which animal food can be obtained.

45. Milk is seldom adulterated with anything except water, which may be detected with sufficient accuracy by means of two instruments termed milk-testers. The most useful of these consists of a long tube, containing 100 parts of milk; this is numbered from the top downwards. When filled with milk to the upper line, and allowed to stand twenty-four hours, the number of parts of cream that have risen to the surface may be seen, and the richness of the milk ascertained.



From the height of the glass tube all the cream does not rise, so that the milk appears poorer than it really is.

In some of the large Union houses the milk is paid for according to the quantity of cream it contains, 10 parts in 100 being regarded as a fair quantity, and a larger amount being paid for at a greater rate, and a less amount at a smaller.

As milk is heavier than water in the proportion of 1030 to 1000, its quality is sometimes tested by an instrument to ascertain its weight; the stem of this

lactometer floats higher in the heavier pure milk than it does if it is diluted with water. But this method of testing is not so good as that first described, as the milk is rendered heavier and apparently better by the removal of the cream.

46. Preserved Milk is now largely used in cities, on shipboard, and in situations where fresh milk is not to be readily obtained. It is made by evaporating nearly the whole of the water of the milk, and adding sugar. If well prepared it is perfectly wholesome, and is very valuable as an article of diet where fresh milk cannot be obtained.

CHAPTER VII.

FLOUR : ITS CONSTITUENTS, STARCH, SUGAR—BREAD-MAKING—PASTRY, &c.

47. **Flour.**—The flour of wheat is that usually employed for making bread in this country. Wheaten flour, like all valuable foods, consists of several distinct substances. These may be separated from each other very readily.

If a little dough, made of moistened flour, is tied up in a piece of muslin, and kneaded for some time between the fingers in a large basin of water, the latter becomes milky from the **starch** of the flour being washed out into it. If this water is allowed to stand at rest, the starch settles at the bottom in the form of a fine white powder. The water contains dissolved in it a small quantity of sugar, gum, and the other soluble substances of the flour.

When the whole of the starch has been washed through the muslin, a greyish tough substance, like very soft indiarubber remains. This is **gluten**, which forms about 10 per cent. of the flour, the starch being nearly 70 per cent., and the sugar and gum 7 per cent., the remaining parts being made up of water, mineral substances, and indigestible fibre.

48. Starch is one of the most important of all vegetable foods. It does not contain any albumenoid substances and cannot therefore supply the materials of which our bodies are formed ; taken by itself, it would not long support life, nor enable a young animal to grow ; but it is the source of the warmth of our bodies and of the strength we exert, in this respect resembling fat and the other oleaginous foods with which it is classed.

As obtained in a pure state, it consists of very minute grains, each covered with an outer skin which is perfectly insoluble in and unchanged by water ; hence pure starch is unaffected by moisture, and may be washed without change.

In boiling water these grains crack, and the interior of each dissolves in the water, forming a thick, gummy solution. A similar change takes place if starch is baked, when it becomes soluble and forms what is called British Gum, which is used in stiffening muslins and cementing postage stamps, &c. Several nearly pure starches are largely used as food. **Tapioca** is a very pure starch, which is slightly heated during its preparation, and rendered partially soluble in cold water.

Sago is a starch obtained from the interior of the stem of a palm tree. It also is heated in its preparation.

Arrowroot is a very pure starch, obtained in the form of a white powder. **Potatoe-starch** may be easily prepared by grating well washed large potatoes into water and allowing time for the starch to settle at the bottom, when the water with the vegetable fibre may be poured away, fresh water being added, and

the starch washed repeatedly until the water can be poured off perfectly clear, when the starch may be dried on cloths and is ready for use.

Prepared in this manner, potato-starch may be used in the place of arrowroot, for which it is often sold, as food it is not at all inferior in value.

The preparations sold under the names of **Corn-flour** and **Maizena** are pure starches obtained from maize or Indian corn by the removal of all the albumenoid and other substances. Their value as food is precisely the same as that of arrowroot or other starchy articles, and, like them, when combined with milk and eggs, they form very advantageous articles of diet.

All starches are useless for food, if taken alone. To render them valuable they require the addition of albumenoid and fatty substances. These may be furnished by the addition of milk. By placing about two ounces of tapioca, rice, or sago in the bottom of a baking-dish, with a little sugar and butter, or dripping, pouring over a quart of cold milk and baking for about an hour in a slow oven, a very economical and valuable pudding results.

49. Starch, in its uncooked insoluble state, is not capable of digestion by the human stomach; hence all uncooked starchy articles should be avoided. Seeds and fruits which consist chiefly of starch, especially if it is combined with oil, as is the case in almonds, hazel and other nuts, are remarkably difficult of digestion.

The perfect digestion of articles of food that contain starch depends greatly on the action of the saliva of the mouth with which they are mixed during

mastication, consequently, it is of great importance to cause children to eat all starchy articles, as potatoes, bread, rice, &c. slowly, and to masticate them thoroughly. It is of much greater consequence to chew potatoes and bread well than meat ; but all substances are more easily digested if eaten slowly.

50. **Sugar** in its value as food closely resembles starch, but being soluble and more readily digested, is especially fitted for children, by whom it is greatly relished. It is unfortunately not so economical as starch, and consequently, except with very young children, is only to be regarded as a luxury. Sugar was formerly obtained almost entirely from the sugar-cane ; but at the present time very large quantities are made on the continent of Europe from beet-root. This sugar is now largely used in this country ; but its power of sweetening is not as great as that of cane-sugar. Treacle, which is an impure syrup obtained in producing white or refined sugar from the moist, or raw sugar, is largely used by the poor ; but it is not so economic a food as sugar itself, though convenient and useful in sweetening bread and for making puddings, &c.

Sugar has a very great preservative power, consequently is largely used in making preserves, and it or treacle is most useful to assist in preparing hams, bacon, &c.

51. **Bread** in this country is made of wheaten flour. Wheat when ground produces what is called whole meal. This may be separated by sifting into several distinct substances. The outer skin, which is in large scales, is called **Bran**. This, contrary to a very prevalent opinion, has no nutritive value whatever.

It is not capable of being digested, but irritates the digestive organs, sometimes to a very injurious extent.

The inner skins are called pollard, sharps, and middlings. The pollard, or coarsest, should be removed from the flour; but the finer inner skins, which constitute the middlings, contain a large proportion of albumenoid and oily substances, and it is economical to allow them to remain. The very finest and most expensive flour from which all the outer portions have been removed is termed pastry whites. That which is not so finely sifted is termed households, or seconds, though the latter is usually made from wheat of slightly inferior quality, and is consequently cheaper.

In consequence of the tenacious character of the gluten of the wheat, flour when mixed with water forms a tough dough. If yeast is added with the water a slight fermentation is caused, and gas is produced which cannot escape owing to the tough nature of the dough. This gas fills the dough with air-bubbles, which cause it to swell or rise, and form when baked a light spongy bread.

52. Bread-making.—In order to make the bread as light and spongy as possible, bakers mix a small quantity of the flour they are about to use with water and the yeast and set it to rise some time before mixing up the mass of dough; this is called by them “setting the sponge.” The advantage of this plan over that usually employed in making “home-made bread” is that a smaller quantity of yeast is required; and, as the whole “sponge” acts as a ferment, the bread is much better and softer than if made in the ordinary manner. To increase the fermenting qualities

of the sponge, bakers always add a small quantity of mashed boiled potato, which greatly quickens the rising of the dough.

To make half a peck of flour into bread on this system, take three-quarters of a pound of well-boiled mealy potatoes and mash them through a cullender or coarse sieve into a large pan, mix with them a pint of flour; take an ounce and a half of German dried yeast, mix it in a separate basin with a pint and a half of lukewarm water,¹ and strain into the flour and potatoes; beating the whole well into a batter. This should then be covered with a blanket and set to rise by the side of the fire, or in a warm place. If kept quite warm it will be found to have risen greatly in two hours, constituting the sponge. This, which is very tenacious or gluey, should then be perfectly beaten or broken down with the hand, and mixed with one pint and a half of water nearly blood-warm (92° Fah.) and poured into half a peck of flour, which has previously had one ounce and a quarter of salt mixed with it. The whole should then be kneaded into dough, and allowed to rise in a warm place. In warm weather it will rise sufficiently in two hours; but in cold weather it will take a longer time. After the dough has risen, it should be turned out on a floured table or paste-board, divided into pieces of the size required for loaves, and lightly kneaded up into shape, with sufficient flour to prevent its adhering to the table.²

If required to be made into lighter bread, a portion

¹ The right temperature is 88° Fahrenheit thermometer.

² Directions for making bread without setting the sponge will be found in the Appendix.

of the dough, when ready for the oven, should be very well kneaded, with sufficient flour to make it rather solid, divided into small loaves or rolls, placed on a slightly greased tin, and set in a very warm place to rise again. The loaves are then washed over with a little milk and baked immediately for about twenty minutes. They should be covered over with cloth after removal from the oven, to prevent the outside becoming hard.

Bakers' bread sometimes contains a small proportion of alum ; this is added to inferior flour, made from wheat harvested in wet seasons, in order to prevent it making sticky and uneatable bread.

Bread contains nearly half its weight of water ; good freshly ground flour absorbing or taking up a larger quantity than such as has been long exposed to the air.

Newly baked bread is much less digestible than that which has been baked the previous day. Stale bread may be rendered soft and palatable by covering it closely with a tin and placing it for half an hour in an oven very moderately heated.

Pulled Bread, which is very useful with cheese or in place of biscuit, is made by pulling the crumb of a loaf in pieces with two forks and baking them in a slack oven until of a very pale brown colour.

Pastry differs from bread in being made with a proportion of fat, as suet, dripping, lard or butter. It is not as easily digested as bread, though very nutritious, and is therefore not suited for invalids. Directions for making the most useful kinds will be found in the Appendix.

53. **Baking Powder** is usually employed for

raising unfermented bread, and is also of great use in making pastry, cakes, &c. It consists of substances that effervesce or give out a gas when moistened. The best baking powder may be very cheaply made by mixing two ounces of bicarbonate of soda, one ounce and a quarter of tartaric acid, and a quarter of a pound of corn flour, or ground rice. These ingredients should be quite dry, and perfectly mixed by passing them twice through a sieve. The powder should be kept in a canister or bottle closely corked, so as to prevent its becoming moist. The preparations sold as egg powder are of a similar character and use, but they do not add to the nutritious value of the food in the same manner as eggs. Patent and self-raising flour is merely flour to which soda and tartaric acid has been added.

54. **Oatmeal.**—Oatmeal though highly nutritive does not contain a tough and adhesive gluten like that of wheat, and cannot therefore be made into fermented bread. It is largely used in the north of England and in Scotland in the form of oatcakes and porridge. Oatcakes are made by moistening the meal, so as to make it adhesive, and rolling it into thin cakes, which are baked on a hot plate. The best method of making porridge is to strew oatmeal with one hand into a vessel of boiling water (to which salt has been previously added), so gradually that it does not become lumpy, stirring the mixture all the time with the other hand. After about two large handfuls of coarse oatmeal have been stirred in to a quart of boiling water, the whole should be allowed to stand by the side of the fire, so as to simmer gently and thicken for twenty or thirty minutes. Porridge is usually eaten

with milk. It is excellent for children, being very nutritious, wholesome, and economical.

Oatmeal should only be purchased at places where there is a quick sale for it, as it absorbs moisture from the air, and very quickly becomes rancid and unpleasant.

Barley, when its husk is taken off, is termed Scotch or pearl barley, which is very useful in soups and broth, it requires from two to four hours' cooking.

Rice from its cheapness is very largely used in this country. It contains a less amount of albumenoid substances than other grains, and scarcely any oily material, being chiefly starch, hence it should always be used with milk, eggs, and fatty substances. (47.) When rice is the same price as household flour the latter is by far the more economical food.

Maize is one of the cheapest of the corn plants, but as it does not yield a tenacious dough, cannot be made into light fermented bread. In America, where it is largely used, it is employed as oatmeal is in Scotland in making cakes and a kind of porridge.



CHAPTER VIII.

PULSE, PEAS, BEANS, AND FRESH VEGETABLES.

55. **Peas, Beans, and Haricots** are valuable articles of food. They differ greatly from grain in containing a less amount of starch and fat, and a much larger quantity of albumenoid matter, which so closely resembles the caseine of curd of milk that cheese can be made of it. From their very dry and hard nature they require good cooking to render them easily digestible, and even when well cooked they do not agree with all persons.

Peas.—These are often used in the green state. Dried peas are chiefly used in making soup, and in this form they furnish a very economical dish for strong healthy persons from the quantity of albumenoid substance they contain, the addition of animal food is scarcely required; the liquor, however, in which meat has been boiled or stewed may be used with advantage. Pea-soup may also be made exceedingly savoury without meat, by previously frying the vegetables, the celery, carrots, onions, or leeks in dripping, with a little flour, until of a brown colour, and then adding them to the soup. The quality of peas varies very much; some are good boilers, others even after long continued boiling, do not soften so as

to mix with the water, and are, therefore, unfit for soup ; good boilers readily dissolve in two or three hours. Dried peas should not be used in the whole state, as the shells or skins are exceedingly indigestible.

Haricots are the seeds of white kidney and runner beans. They are greatly used on the continent as a vegetable and in soups. When required as a vegetable they should be placed in water the previous night so as to soak thoroughly, they then require less boiling and are softer ; when cooked they are eaten with meat, gravy, melted dripping or butter.

The seeds of any of the varieties of French bean or scarlet runner may be employed in a similar manner, but from the colour of the skins they are less sightly on the table.

Lentils are largely used on the continent in the same manner as dried peas are in England.

Ground lentil flour is sold as "Revalenta" for the use of invalids, but it is only fitted for persons of strong digestion.

56. Fresh Vegetables.—The use of fresh green vegetables is necessary to health. Persons deprived of them for any great length of time, as sailors sometimes are at sea, become subject to a very serious and fatal disease termed scurvy. The number of fresh vegetables used as food is very great, but the most valuable are potatoes, cabbages, turnips, carrots, parsnips, and onions. Peas and beans are also largely used in a green state.

57. Potatoes.—The potato contains about three-quarters of its weight of water. The solid matter is principally starch ; the saline substances it contains, however, render it valuable as a fresh vegetable ; the

addition of a few pounds of potatoes weekly to the diet of sailors, &c., is most effectual in preventing scurvy ; the potato also contains a peculiar substance, having an extremely nauseous and unpleasant taste ; this is in great part driven off by the heat employed in cooking ; some, however, remains in the water in which potatoes are boiled, giving it a disagreeable taste and smell ; consequently in making an Irish stew, or soup in which potatoes are used, it is desirable to boil them by themselves in the first place and throw away the water in which they are boiled.

Potatoes should be cooked with their skins on, except when baked under meat ; for if peeled before boiling, there is great waste, as well as considerable loss of time ; they can also be cooked to a much greater degree of perfection when boiled unpeeled. Many kinds of potatoes are much better steamed than boiled, and there is less risk of their being badly cooked. It should be borne in mind, however, that, as the condensed steam runs back into the saucepan underneath, the water becomes contaminated, and imparts an unpleasant taste to any food boiled in it.

58. Cabbages.—All the plants of the cabbage tribe, such as savoys, greens, kail, &c., are very valuable articles of food. Like most green vegetables they contain only one tenth of their weight of solid substance, the other nine-tenths being water. Cabbages when well boiled are very wholesome food. They consist chiefly of albumenoid substances, with no fat or oil and very little starch. Consequently they should be eaten with fat substances, as dripping or bacon, to supply the deficiency.

All green vegetables should be cooked in soft

water ; where this cannot be had a very small quantity of soda may be used ; and in order to soften the water as much as possible, it should be made to boil rapidly before the greens are put in ; it should also boil quickly during the whole time the green vegetables are cooking, or they will become brown.

Turnips also contain about ninety per cent. of water ; the solid part is very nutritious, easily digested, and wholesome. Turnips are used as fresh vegetables, and flavour soups, broths, &c.

Boiled turnips pressed so as to get rid of the water, and mashed up with a little butter or dripping, pepper and salt, supply a very valuable article of food.

Carrots and Parsnips are more nutritive than turnips ; they can be kept many months if the tops are cut out and they are placed in damp sand.

Onions.—Onions and leeks owe their flavour to a volatile pungent oil ; if eaten uncooked they are not easily digested, but when boiled or roasted, they are nutritious and wholesome—they contain a large amount of albumenoid matter. They are also largely used for flavouring stews and soups.

59. Fresh Fruits, such as apples, gooseberries, oranges, pears, &c., are very important foods ; the health of children can hardly be preserved without their use, and they suffer greatly if deprived of them.

Nuts and dried fruits, such as figs, raisins, &c., do not possess the beneficial action of fresh fruits, and nuts are very difficult of digestion.

CHAPTER IX.

CONDIMENTS : SALT, PEPPER, SPICES, &c.

60. THE most important condiments are salt, pepper, and mustard—of these salt alone is a necessary of life. The others are useful if used in small quantity to render food more palatable, but employed in large quantity they are injurious, and not required by the young, whose powers of digestion are good.

61. Salt is absolutely essential to health, and even to life. It is one of the most abundant of all minerals; in many places it is found in the earth in great quantities. Sea water contains three parts in every hundred; it is found in small amount in all soils, in spring and river water, and in all those vegetables which are used for the food of man and animals.

Salt when taken in the food supplies two substances, an acid which helps to form the sour fluid of the stomach that digests our food, and soda, which is the bile, a fluid which must be added to the dissolved or softened food before the nourishment can be extracted from it. If persons are compelled to live without salt, or on such food as does not contain a sufficient quantity, they become ill. The quantity of salt each

person requires is between a quarter to half an ounce daily. A large part of this is contained in the various articles of food and drink.

Salt possesses the power of preserving meat and other substances. It acts by removing a large proportion of the liquid parts. The injurious effect of salted meat, when used for a lengthened period, has already been described (27).

Salt is largely employed in some countries in preserving green vegetables for winter use. Thus French beans may be kept for many months by cutting them in slices, packing them in a jar with layers of salt, and pressing them down so that no part comes above the brine, which flows out. If tied over and placed in a cool situation they will keep a long time, and are ready for use as soon as the salt brine is washed away. In many countries cabbages and cucumbers and other vegetables are preserved in the same manner.

Salt should always be taken with our meals, for a sufficient quantity does not exist in our food to supply the wants of the body.

62. Vinegar.—Vinegar is an acid liquid, obtained in this country by allowing a kind of weak beer to become sour.

It has the power of preventing substances putrefying, and is used for this purpose in making pickles. If taken with our food in small quantity it helps us to digest many substances that are difficult of digestion; in large quantity it is very injurious. It is employed in cookery to assist in softening the fibres of tough meat,¹ and to pickle fish, vegetables, &c.

¹ See directions for making Brazilian Stew in Appendix, Fifth Lesson.

Pickled vegetables, as onions, cabbage, &c., are very difficult of digestion, and if taken in large quantity are decidedly injurious.

63. **Mustard** is one of the most common condiments. If used in small quantity it promotes the appetite and increases the digestive power, but taken too freely it irritates the stomach and is very injurious. As a medicine mustard is of very great use, spread on calico and applied to the skin it relieves internal inflammation, by drawing the blood to the surface, in this manner it often relieves the most violent pain, and may be safely used in the absence of medical aid.

64. **Pepper** is the spice most frequently employed in this country; like other spices it is useful in seasoning, but great care should be taken not to use it in large quantity, as it injures the stomach and renders the digestion of plain food difficult. Children should not be accustomed to highly spiced and seasoned dishes.

CHAPTER X.

BEVERAGES : TEA, COFFEE, COCOA, BEER, &c.

65. Tea is more used in this country than any other unintoxicating beverage. Taken in moderate quantity it is not injurious, but in large quantity it is hurtful, especially to persons who are not well fed. Tea is best made in an earthenware teapot, which should be kept dry, for if allowed to remain damp after use it acquires a musty flavour. The water should be boiling, and, if possible, soft; when hard water is used, it may be softened by being kept boiling for half-an-hour, when the lime which causes the hardness is partly thrown down, forming what is called fur or rock on the kettle; or a very small quantity of carbonate of soda may also be used, or the tea may be allowed to remain soaking for half-an-hour by the fire-side, or be covered over with a woollen cover to prevent the escape of heat. As a general rule, the harder the water the longer the tea should be allowed to remain before use, care being taken to keep its temperature as near as practicable to that of the boiling point.

66. Coffee is more stimulating than tea. If taken immediately after a meal, it appears to assist the

digestion. Like tea, if drunk strong, it produces wakefulness, which sometimes lasts for many hours. Coffee contains a bitter principle, but its flavour mainly depends upon a volatile substance which is driven off by boiling; to preserve its taste, it should therefore be made without boiling. The French coffee-pots, made of two cylindrical vessels, the upper having a metal strainer on which the ground coffee is placed, and through which the clear infusion runs into the lower one, are the best. The flavour of coffee is also very greatly improved by the employment of hot boiled milk.

Chicory is the root of a plant. When roasted it is used with ground coffee to give colour and flavour; it is most advantageous to purchase it separately and mix it in the proportion of one part to three or four of coffee.

67. Cocoa.—Cocoa and chocolate are prepared from the crusted seeds of an American plant. The kernels contain nearly half their weight of fat. Cocoa is much more nutritious than tea or coffee, but not so stimulating. Chocolate is made of the pure kernels ground in a mill with sugar. Cocoa should contain the ground kernels only, but the husks are ground up with the cheaper kinds, which also contain potato-starch, and earthy substances, as red ochre, &c. Soluble cocoa contains a large proportion of starch, which thickens when boiling water is poured upon it. Genuine ground cocoa unmixed with other substances cannot be sold under one shilling to fourteenpence per pound.

Cocoa is a very wholesome and nutritious beverage, and does not produce those effects which render tea

and coffee objectionable to some people; and is far better for working men and for children.

68. **Beer** and other intoxicating drinks are taken as luxuries. There is no doubt that they are not necessities of life. To children all stimulants are particularly injurious, and they are never taken willingly, unless the child has been trained to use them. If children are brought up without them their strength and health are much better than those of children who take them, and they can do more work and endure more fatigue.

There is more support and strength to be obtained from a pint of milk than a gallon of beer. To old persons who have been accustomed to the use of spirits and beer for many years they often become necessary, but it is exceedingly wrong to teach children to use them.

PART II.

HOUSEHOLD MANAGEMENT.

CHAPTER XI.

THE HOME : CONDITIONS NECESSARY TO HEALTH.

69. Good health and the power of working so as to gain a comfortable living are impossible when persons dwell in unhealthy and overcrowded homes. Many circumstances render a house or dwelling unhealthy. The neighbourhood of an overcrowded churchyard, or a place where any unwholesome trade is carried on, is always injurious to health. If a house is in a narrow dark street, and the rooms face the north so as not to be warmed by the sunshine, or if they are closely shaded by trees, they always remain damp and cold, and the health of the persons inhabiting them suffers.

Houses in low situations, where the ground is always damp, are never healthy, and fevers, rheumatism, colds, and other diseases, are much more frequent than in drier situations.

70. In London and other large towns where the houses are drained into the sewers, no house should ever be lived in which is built over or near a cesspool, nor in which the drains allow an unpleasant smell to escape, as fever is certain to attack the inhabitants sooner or later. If cesspools are necessary, as is the case where there are no sewers, they should be placed at as great a distance as possible from the house.

Earth closets are much more healthy than cesspools, as, if well managed, they do not give out any offensive smell ; the use of any patent apparatus is not necessary ; any outdoor closet may be made into an earth closet by placing a stout well-pitched drawer or box beneath the seat, arranged so as to pull out behind when required to be emptied, and a box of dried earth, with a scoop in the inside, is all else that is necessary. Or the seat may be made to lift up, and a large galvanized iron pail placed below, which can be removed and emptied when necessary ; very little earth is required if no slops are thrown into the pail. Slops should not be thrown into an earth closet.

71. The homes of working men in London and other large towns are generally greatly overcrowded, and without proper sleeping-rooms. When a family is obliged to dwell in one or two rooms, it is impossible that they can live healthily or decently. Bed-rooms should be of good size, and each one should have a fire-place and chimney, which should never be closed by a board, as the current of air passing up the chimney helps to ventilate the room. It is not possible to state any exact size for bedrooms as the air in a small room properly ventilated may be purer than a large

one that is closed up. A room 12 feet square by 10 feet in height, would contain 1,440 cubic feet of air. In barracks this would only be regarded as space for two men, and in the best hospitals for one patient.

In the country every cottage for a working man with a grown up family should have three bedrooms—one for the husband and wife, one for the elder boys, and a third for the girls. One of these bedrooms at least should have a fire-place, to be used in case of illness ; and for the sake of ventilation, it is better that each one should be so provided.

Every cottage should have a living-room not less than 12 feet square, and a small scullery or wash-house. A small pantry for food is necessary ; this should have a window able to be opened outside of the cottage into the air. A place for tools, and another for fuel, are desirable. Every house should have a back as well as a front door, so that by opening both in summer thorough ventilation may be effected. If the front door opens into the sitting-room, there is in cold weather a great loss of heat each time the door is opened, and the sudden change of temperature often gives rise to colds and coughs, the front door should always be made to open into a porch or lobby.

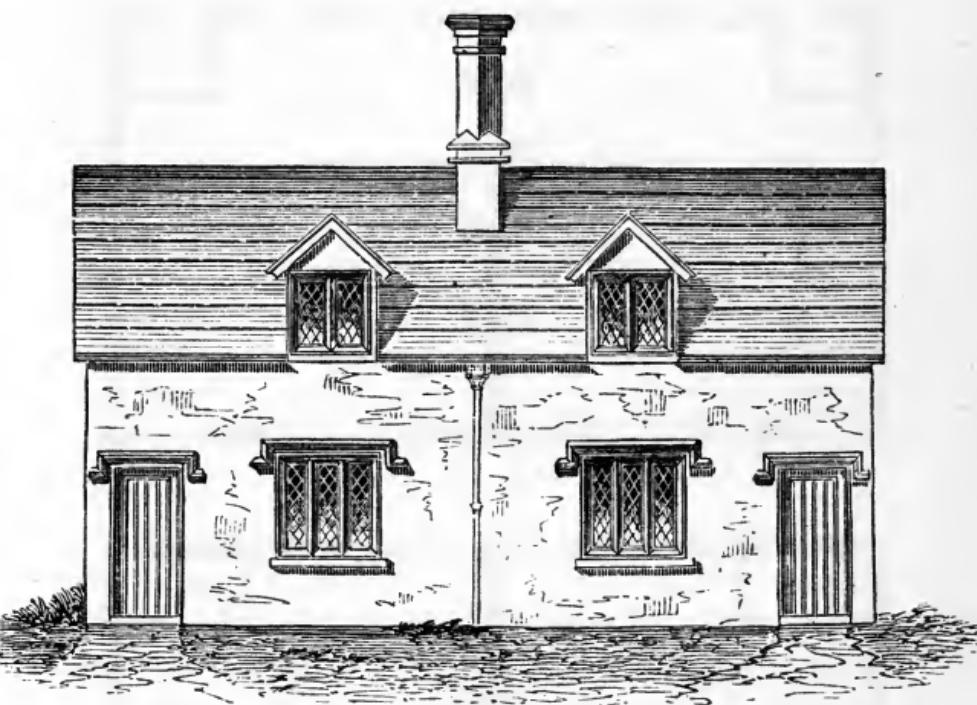
72. The following designs for a pair of cottages for agricultural labourers, show the smallest accomodation that is necessary for health.¹

73. **Furniture.**—Good well-made articles of furni-

¹ They are from the publications of "The Society for Improving the Condition of the Labouring Classes." Exeter Hall, W.C.

ture are much more lasting than those of inferior quality, and are really the cheapest. Therefore it is much better to purchase furniture of a durable kind, although the first cost is greater.

Articles purchased at cheap shops are always made of bad materials and are very much the dearest.

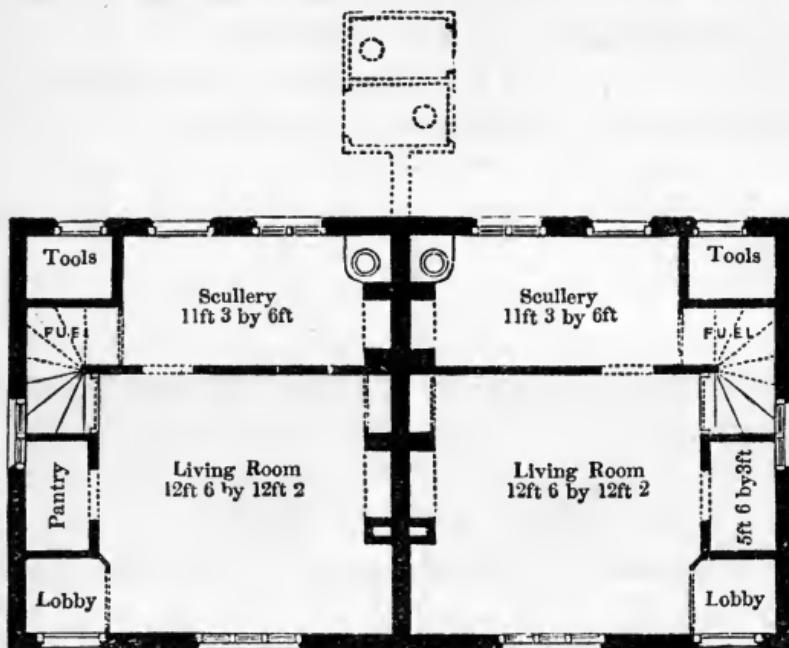


DOUBLE COTTAGES FOR THE COUNTRY.

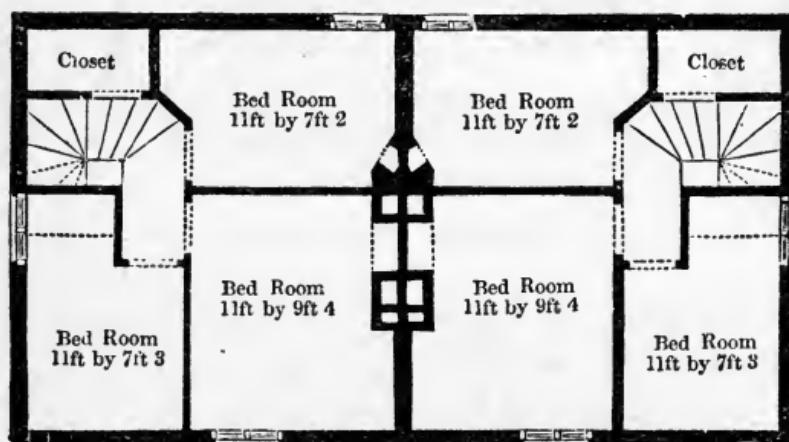
It is desirable in a working man's house not to use furniture which requires much time and trouble in cleaning ; glass and earthenware are more readily cleaned than any other substances, and, for many purposes, are preferable to metal.

Iron bedsteads are better than wooden ones, as they do not harbour insects, are easily cleaned, and very

durable. The laths may be prevented from becoming rusty by laying a piece of coarse canvas or old



GROUND FLOOR PLAN.



UPPER FLOOR PLAN.

carpet over them; waterproof materials should not be used under the mattress as they prevent the damp

escaping, when the bedding decays quickly and the bed remains cold and damp. On getting up in the morning the bed-clothes should be thrown across the foot of the bed or on the backs of some chairs, and aired for two or three hours before the bed is made ; making the bed immediately on rising is a very bad plan, as the sheets are charged with the moisture of the perspiration which has passed out of the skin during the night.

Mattresses are cheaper and more healthy to use than soft feather beds ; and curtains which keep the foul air that has been breathed round the sleepers should not be used.

74. It is very undesirable to buy furniture or clothing of the hawkers known as Tallymen, who call at working men's houses, and sell showy and inferior goods, to be paid for by small payments of sixpence or a shilling per week. The articles are generally purchased by the wife, often without the knowledge of the husband, who becomes liable for the debt. Should the payments not be kept up, the husband is summoned to the County Court, and ordered to pay so much a week or month ; after a judgment has been obtained, if only one of these instalments be left unpaid, the whole balance becomes instantly due, and everything the debtor has can be seized by the brokers and sold by auction immediately.

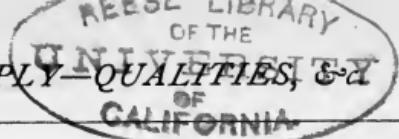
CHAPTER XII.

WATER SUPPLY: QUALITIES OF WATER, INFLUENCE ON HEALTH; WASHING, COOKING, &c.

75. THE goodness of the water used by us is of very great importance. Many more diseases are caused by bad water than even by bad food. Water forms three-quarters of our weight, and before any part of our food can be taken into our bodies it must be dissolved in the watery fluids of the stomach. All fresh vegetables contain a very large proportion of water. Thus potatoes consist of three-quarters, and turnips and cabbage of upwards of nine-tenths, of their weight of this liquid. Even the driest vegetable substances contain a large proportion. Dry wheaten flour has fifteen pounds of water in every hundred; this is driven off by the heat when it is baked in making infant's food;¹ and bread contains one third of its weight of water.

76. Water has so great a power of dissolving other substances, that it is not found anywhere in a perfectly pure state, but has always in it mineral substances, sometimes decaying vegetable and even animal materials derived from the soil or earth through which it flows, and gases and odours absorbed from the air.

¹ See Appendix, First Lesson.



77. In large towns water is usually supplied by the water companies through pipes, having been obtained from rivers. The water is generally supplied only for a short time each day, and the quantity received has to be stored up in cisterns or water-butts. These should be very frequently cleaned out, as the impurities of the water settle at the bottom and are stirred up each time the fresh water comes in. Water-butts and cisterns should never be placed near any decaying matters, such as manure heaps, or in close underground cellars, or near cesspools or drains, as the water very quickly absorbs the gases and bad smells arising from such substances, and becomes unwholesome. Water standing for a night in a close or crowded room absorbs the impure air and becomes unpleasant to the taste and injurious to health. When the waste or overflow pipe from a cistern runs into a drain the foul air rises up the pipe and renders the water unwholesome, and the same evil arises if the cistern supplies a water-closet.

78. River water varies very much in quality, that from some rivers contains a great amount of decaying matter from the sewers and drains that run into them ; such water should not be used if it is possible to avoid it, but if no other can be obtained, it should be filtered and boiled before being drunk, or used in preparing food.

All river water contains a small proportion of chalk, or carbonate of lime, dissolved in it. If the quantity is large the water is said to be hard—the greater the proportion of chalk the harder the water. The water of the river Thames, with which the greater part of London is supplied, contains fourteen grains of chalk

in each gallon. Very little chalk (only two grains in every gallon) can be dissolved by pure water. The large quantity found in river and spring water is dissolved by means of a gas, called carbonic acid gas, which is always present. When the water is heated this gas is driven off in small bubbles, which may be seen just before the water reaches the boiling point ; the chalk is then thrown down in a solid form, rendering the water slightly cloudy or turbid, and afterwards it settles down on the sides and bottoms of boilers or kettles forming the rock or fur which is always found in old boilers.

When green vegetables are boiled in hard water, the chalk causes them to be of a dull colour ; and when clothes are boiled in hard water, as is sometimes done in washing, the rock or fur settles on them, causing them to be of a bad colour, the dirt being fixed in the clothes.

When hard water is used for cooking or washing it is best to boil it for a few minutes before using it, as then the fur is thrown down on the sides of the boiler, and not on the food or clothes. Hard water is not good for making tea, as the strength of the tea-leaves is very slowly extracted.

The bad effects of hard water in cooking may be partly remedied by using a small quantity of carbonate of soda, or even common washing soda, this softens the water, but if much be added it gives a soapy, unpleasant taste ; as much as would cover a sixpenny-piece may be added to a large saucepan of greens, and about a quarter as much to a large teapot of tea.

79. Spring or well water differs very much in purity, that which is collected in shallow wells should

never be used in places that are thickly populated or highly manured, for the water is rendered impure by the decaying animal and vegetable substances in the soil, and becomes very unwholesome.

When shallow wells are situated near cesspools or drains, the water becomes quite poisonous, and gives rise to cholera, fevers, and other fatal diseases. The water of wells situated in large cities, or near graveyards, is always to be avoided.

80. The water from deep wells is generally free from any decaying vegetable matter or drainage, and is wholesome as a beverage, but it most frequently is excessively hard from containing a large amount of chalk dissolved in it.

81. Rain water is very pure if collected in country districts where there is but little smoke, but in towns it is always blackened by soot. It is very soft, being perfectly free from mineral substances, and if collected in proper tanks free from leaves of trees and other decaying substances is very well fitted for cooking, drinking and washing.

CHAPTER XIII.

AIR AND VENTILATION.

82. The Air we breathe is necessary to purify the blood and to support life. Air, though invisible, is a material substance, a quantity of it in a bladder or air-tight bag prevents the sides being pressed together ; it also possesses weight ; a box, each side of which is one foot square (or one cubic foot), contains one ounce and a quarter of air. The air in a room twelve feet square and eight feet in height weighs ninety pounds.

83. Air is not a simple substance, but a mixture of several gases. The most important of these is **oxygen**, which forms one-fifth part of its bulk. It is the oxygen which purifies the blood when we breathe, and it also enables combustible substances to burn when set on fire. The remaining four-fifths of the air consist chiefly of **nitrogen**, which serves to dilute the oxygen and render it milder, otherwise both our breathing and the burning of fires would go on too rapidly.

84. The breathing of men and animals and the burning of fuel take away part of the oxygen of the air, and its place is supplied by a gas called **carbonic**

acid. This is very injurious if breathed. Air containing only one-thousandth part ($\frac{1}{1000}$) of carbonic acid destroys health if breathed for any length of time. In crowded places, or in bed or sitting-rooms when the doors and windows have been kept closed for some time after they have been occupied, the air often contains two or three times as much of this poisonous gas, or from two to three parts in a thousand. If this air is breathed for any length of time it speedily causes headache, weariness, and loss of strength. Persons who spend great part of their lives in rooms filled with bad air become pale and sickly, and are liable to many more diseases than those living in pure air.

85. The air always contains a considerable quantity of **moisture**, which varies very much at different times of the year and in different places. When the quantity of moisture is so great that it settles upon objects and makes them damp, it is injurious to health; and houses in which the walls and foundations are damp are always unhealthy.

A large quantity of moisture passes away from the body in the air that is breathed out from the lungs, and a great amount is produced by the burning of gas and other lamps.

86. Not only is the air of close rooms and houses rendered injurious by the carbonic acid and water produced, but it is made still more poisonous by the **decaying animal matter** which passes off in our breath, and which is also given out by the walls and floors of unclean houses, by dirty clothes, and by that air which comes into the house through drains or passes over stinking dust-bins and heaps of decaying refuse.

Whenever a house smells close and fusty to a person coming in out of the open air, it is always unhealthy, and sooner or later will produce illness in those who live in it. The good health that persons who live in houses in open country places enjoy is entirely owing to the pure air they breathe. But even in country villages the air is often rendered unwholesome by cesspools or dung-heaps being kept close to the house, or by the filthy habit of throwing the house-slops and dirty water on the ground close to the door.

87. A full-grown person takes into his lungs about two-thirds ($\frac{2}{3}$) of a pint of air every time he breathes, and when not breathing quickly, from running or hard work, he usually does so about eighteen times every minute ; this is equal to twelve cubic feet every hour. This quantity of air weighs nearly one pound, so that we actually take into our lungs nearly twenty-four pounds of air every day, a greater weight than our food and drink taken together.

88. The air that passes out of our lungs is quite unfit to support life if breathed again, even when mixed with ten times its bulk of pure air, therefore the air in our living and sleeping rooms must be constantly changed, or it would soon become poisonous. Persons have often been killed by being shut up in close rooms or in ships during storms.

The burning of a candle renders the air nearly as impure as the breathing of a single person, and every gas burner consumes a very much larger quantity.

89. The impure air that passes off from our bodies and that produced by the burning of lamps and fires, is always, from being heated, lighter than before, it

therefore rises and at first collects in the upper part of the room, unless it is allowed to escape.

In a room that has a fire-place a stream of air is usually passing up the chimney, fresh air coming in by the cracks round the doors and windows. No bedroom should be slept in without a fire-place unless ventilation is otherwise provided for ; even the quantity of air coming in round the window and door is not sufficient, it is therefore much better to sleep with the window open. This may be done without causing a draught, by placing a board three inches wide on its edge under the lower sash, which is thus raised, causing a space between the two sashes in the centre of the window ; through this the air enters and being directed upwards does not cause a draught.

90. It is much more desirable to let the air come into a bedroom through the window than through the door, as the house being closed at night the air often comes through the drains or damp cellars, and is not as pure as that which comes from outside the house. Gas is not desirable in close sitting or bedrooms, its effect on the air being much more injurious than candles or lamps.

CHAPTER XIV.

FIRING: STOVES, RANGES, AND ECONOMICAL MANAGEMENT OF FUEL.

91. The fuel used for cooking our food and warming our dwellings is usually coal or coke ; in some parts wood or peat is employed, and occasionally coal gas.

92. The heat produced during the burning of fuel is given out when the carbon of the fuel unites with the oxygen of the air, and carbonic acid gas is produced, as it is by the breathing of men and animals. This poisonous gas usually passes up the chimney with some unburned carbon which forms the smoke.

When charcoal is burnt, the carbonic acid is produced without smoke, and therefore it is often used in stoves without chimneys, and the carbonic acid escaping into rooms is frequently the cause of fatal accidents. All stoves without flues or chimneys to carry off the carbonic acid are dangerous, and many persons have been poisoned by their having been used.

93. The heat produced by the burning of any kind

of fuel makes the air in and around the fire much lighter, and it rises rapidly over the fire, usually passing up the chimney. More than nine-tenths ($\frac{9}{10}$) of the heat of a common grate passes up the chimney in this manner, and is wasted. If the grate is constructed of thick solid metal, this conducts away a large quantity of the heat so that it is impossible to keep in a very small fire in an iron range, whereas a mere handful of fuel can be kept alight in a grate lined with fire brick or fire-clay which does not cool the burning fuel in the same manner metal does. Part of the heat produced is thrown out by the fire, and passes into the room. In ordinary grates the amount of heat passing off in this manner is very much lessened by the thick bars which are frequently placed in the front of the grate.

94. Ordinary fire-grates are most extravagant modes of using fuel, and are not employed by the people of any other nation. Not only is a good deal of the heat carried away up the chimney, and by the conducting power of the iron, but the shape of the grate and the bars also prevents much being thrown out into the room.

95. An ordinary grate may, however, be made more economical. If it be lined with bricks, tiles, or fire-clay, and the open bars underneath be closed, either by fire-clay or a piece of tin plate, the air will have to enter in front where the fire will be brightest, and no heat will be thrown down into the ash pit.

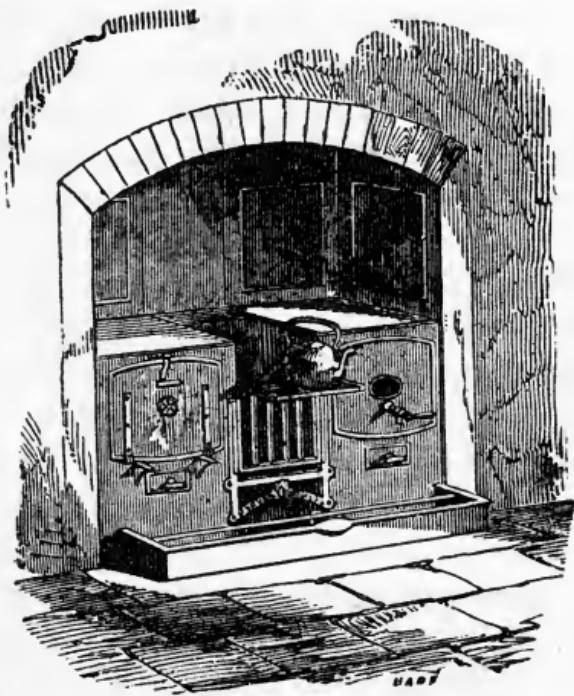
96. Cooking ranges with an oven on one side are very useful in a small family. If well constructed they will bake bread, meat, and pies or puddings very perfectly.

Even when there is a low fire the oven can be used

for stewing, and slow cooking can be done on the top much better than over a common fire.

A boiler by the side is not so important as an oven. Boilers are liable to get filled with the deposit or rock from the water; and if they are of cast iron, they are apt to crack.

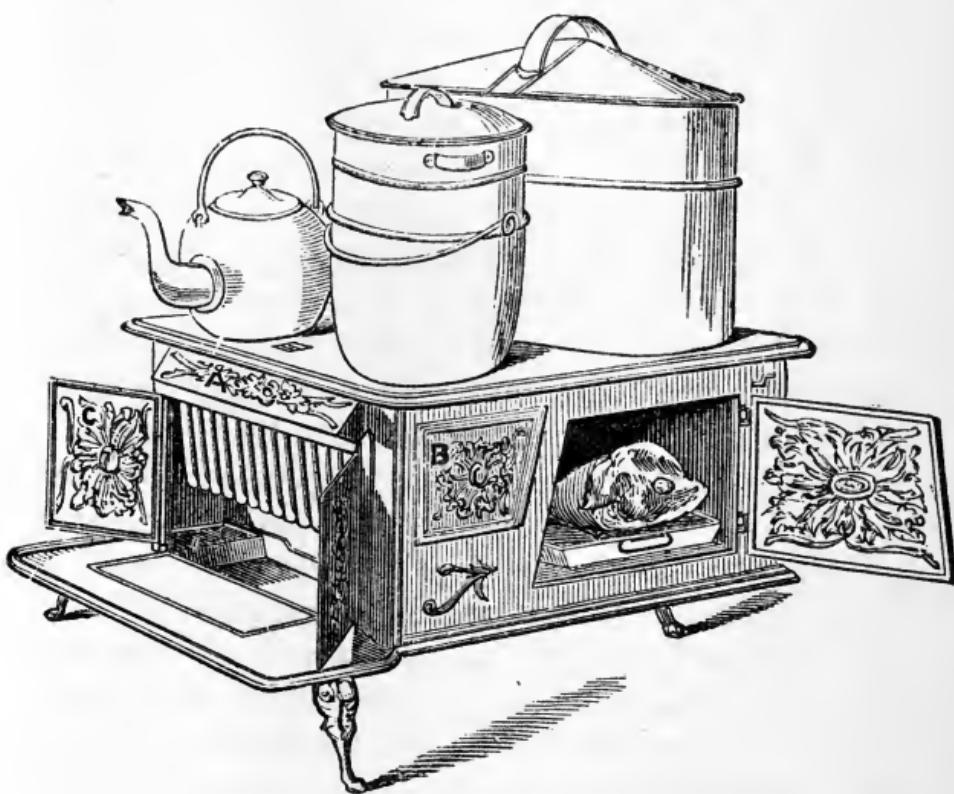
As an example of a good cheap open range, the following may be taken; it has a fire-clay back to



prevent the heat passing away where it is not required, a good sized oven with the door to let down in front, and a boiler. Grates of this kind are now made by many manufacturers, and are sold at a low price.

97. Cooking stoves are much more convenient and economical in use than ranges. They are used by almost all persons in America, and are now very largely

employed in this country. A very good pattern is shown in the engraving. It has an open fire which can be used for broiling and toasting. This fire is quite under control, and can be raised or lowered in a few minutes by opening or closing the doors so as to cause a strong current of air to pass through the



burning fuel or over it as required. The size shown will bake a joint as large as a leg of mutton, or two tins of bread admirably.

The cooking vessels can be put down on the fire or placed on the hot iron top, and shifted so as to receive as much heat as required.

The stove can also be used as a hot plate for

preserving or stewing. The open fire is cheerful, and the stove is a good heating stove as well as cooking stove. Any large boiler placed on the top will furnish an unlimited supply of hot water. If placed in front of an open fire-place these stoves require about six feet of iron pipe to be placed up the chimney. Being perfectly movable they can be carried by the owner from one house to another and placed in front of any fire-place. They are sold by Smith and Welstood, Ludgate Circus.

98. Gas-stoves.—Gas when employed as ordinary fuel is exceedingly expensive, being at least five or six times as dear as coal. When the gas is burned inside the oven in which meat is to be baked the vapour arising from the burnt gas renders the meat sodden and unpleasant, and quite different from the meat cooked in an ordinary oven or before the open fire.

Gas can however be used as an occasional source of heat with great economy as it is instantly lighted and put out; there is no waste of fuel or loss of time. The best small gas stoves are those that can be placed on a table and burn the gas mixed with air, when it produces a pale blue flame which does not smoke any vessel placed within it. These stoves are particularly useful in heating a kettle of water in the summer time, or when there are no fires in the house.

CHAPTER XV.

LIGHTING: CANDLES, PETROLEUM, BENZOLINE, AND GAS LAMPS, THEIR MANAGEMENT, ETC.

99. **Flame**, which gives the light employed in our houses during the absence of the light of the sun, is always produced by the burning or combustion of inflammable gas.

When a candle is lit, the fat, wax, or other material of which it is formed, is melted, then drawn upwards into the flame by the attraction of the wick, it is there heated so strongly that it is converted into gas, which burns as fast as it is made, thus producing the flame. In oil lamps the same happens, and in gas burners the gas burns as it escapes.

100. The gas which is burnt to give us artificial light, whether obtained from coals and supplied through pipes, or produced in the burning of a lamp or candle, consists chiefly of two substances, namely, **hydrogen**, which is always a gas, and **carbon**, which when not united with hydrogen or any other substance is usually a black solid, like charcoal or soot.

101. Both these substances burn in the flame, uniting with the oxygen of the air. The hydrogen in burning forms water, a large quantity of which passes off from every flame in the form of vapour or steam. Many gas lights in a close room make the air very damp, and the moisture they produce may often be seen settling on the cold glass of the windows, or even running down the walls. The carbon or charcoal when burnt forms carbonic acid, an invisible gas. When there are many gas lights in a badly ventilated room, or even one in a room that is not ventilated at all, the air becomes very unwholesome from the presence of carbonic acid gas.

102. If there is not enough air to enable both the carbon and the hydrogen to burn, the hydrogen burns first, and part of the carbon passes off in the form of smoke. By putting any cold pieces of metal, glass, or earthenware into a flame, the carbon is prevented from burning and settles on the metal or glass, covering it with black soot.

103. **Candles**, which were formerly very generally used, give out very little light and are the dearest mode of producing light.

Much may be learned of the nature of flame by watching attentively that of a common candle ; at the bottom is a pale blue light which is caused by the fresh air rising against the flame and producing the perfect burning of both the carbon and the hydrogen ; in the interior of the flame is a dark centre which consists of the unburnt inflammable gas rising from the wick ; this cannot burn until it reaches the air outside. The outside of the flame is very bright—it is there only the gas burns.

If a small slip of wood be held for a moment steadily across the centre of a flame, it will be seen that the part in the middle is not burnt, only that which was at the outside of the flame.

104. The oil used in lamps is of two distinct kinds. The fat **greasy** oils, such as seal or whale oil from animals, and olive or colza oil from vegetables. To obtain a good light from these fat oils it is necessary to make the flame hollow, and admit air into the interior, as is done in what is termed an Argand burner.

In order to cause a strong current of air through the flame of an Argand, a tall glass chimney is requisite.

105. The **mineral oils**, called paraffin or petroleum oils, are the cheapest oils in use. They contain a very great amount of carbon or charcoal, and if they are burned without a chimney this escapes into the air in dark clouds of black smoke. These oils, therefore, require to be burned in a properly constructed lamp, so that sufficient air shall be sent against the flame to consume all the carbon.

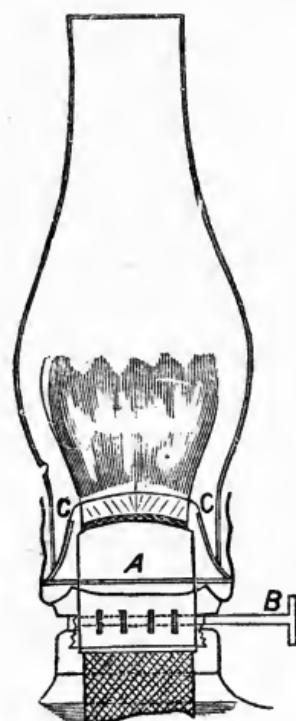
The best **paraffin lamps** are those with a single flat wick, which is able to be turned to any required height above the wick tube A, by small toothed wheels turned by a handle, B. The large quantity of air required by the flame rises up through the cone or cap c, and is directed against the sides of the flame, producing a complete combustion of the carbon, and a very brilliant light.

Paraffin or petroleum oils were formerly sold containing much volatile inflammable spirit. At the present time no mineral lamp oil must be sold which is dangerous.

Petroleum lamps are perfectly free from danger if

properly used. The oil-holder should be of glass, as if made of metal, it is apt to become heated. The lamps should always be filled before dark, and never after being lighted.

Any oil spilled on the outside should be carefully wiped off, or it will produce a disagreeable smell when



DIETZ'S FLAT WICK BURNER.

the lamp is used. To light a petroleum lamp the glass chimney should be removed, then the wick turned above the slit in the cone, and when lighted instantly turned down again; the chimney should then be put on and the wick turned up so as to produce a large bright flame without smoke, but so as to produce the full flame, when the lamp burns without smell. If the flame is turned down low, there is no saving of oil,

as a large quantity is sent off in vapour and produces a most disagreeable smell.

106. Sponge or spirit lamps are made for using the very inflammable spirit termed benzoline. They are filled with sponge or cotton wool which is moistened with benzoline, the wick-holder is then screwed on and the wick turned up level to the top; when lighted a small flame, rather greater than that of a candle, is produced. As the benzoline is very inflammable these lamps should never be trimmed after dark, or near a fire, as the vapour may take light. If trimmed in the day-time, and only enough spirit poured in to moisten the cotton wool, they are quite safe, and are the cheapest source of a small light. When used as night lights they should always be placed under a chimney as the vapour escapes and smells when they are turned down low.

Coal gas is unquestionably the cheapest source of light, but its economy is not so great as is generally imagined ; the flame cannot always be brought where it is wanted, consequently a much greater amount of light is necessary than when movable lamps are employed.

For small rooms, the two-hole, or fish-tail burner is best, being cheap, simple, and capable of causing a very perfect combustion of the gas. With this burner the flame is spread out into a thin, flat sheet, by the two currents of gas striking against one another. In a fish-tail burner the gas should always be turned on so as to cause a full-sized flame without flickering, as otherwise the gas is not perfectly burnt. A large-sized burner should not be used where a smaller one will answer. The flame gives a much brighter and steadier

light when placed horizontally, with the flat sides turned up and down, than when burned upright in a glass globe, when the flame always flickers and is injurious to the eyes. An ordinary-sized fish-tail consumes from three to four cubic feet of gas per hour, and gives the light of from six to nine candles.

Where a great amount of light is required a circular or Argand burner is more economical than the fish-tail. In most burners the chimney is too high ; this causes too strong a current of air, and a great loss of light ensues. An Argand with a ring having fifteen holes, should not have a chimney more than seven inches high. Such a burner will consume about five cubic feet of gas in an hour, and give an amount of light equal to that of fifteen sperm candles.

In all cases where gas is used, the room should be ventilated, or the air will become very unhealthy from the great amount of carbonic acid and vapour of water produced.

Explosions sometimes occur when gas has escaped from a leaky pipe or a burner that has been left open. The explosion is generally caused by some person taking a lighted candle to discover the leakage, when the escaped gas takes fire instantaneously, and burns with a violent explosion. Whenever there is a strong smell of escaped gas, the maincock at the meter should be immediately turned, and the doors and windows opened to allow the gas to escape. No attempt should be made to search for the leak with a light, but notice should instantly be given to a gas-fitter.

CHAPTER XVI.

CLEANING, WASHING, AND GENERAL HOUSEWORK.

107. THE healthiness or unhealthiness of a house depends very greatly upon its degree of cleanliness; dirty, uncleansed houses are always more or less unhealthy. In country places, where the ground around a house is not paved with stone, care should be taken that no puddles of dirty water remain close to the house, as they not only render the air damp and unwholesome, but cause much dirt to be brought in on the feet.

Slops of dirty water, tea-leaves, coffee-grounds, &c., should never be thrown out near the house, as they decay and are injurious.

All decaying vegetable and animal matter near a house is injurious. Cabbage-leaves, potato and apple-parings, and other waste vegetables should never be thrown into the dust-bin, but should always be burnt; which can always be done if they are first dried by throwing them at the back of the fire or in the ash-pit.

The dust-bins of houses in town should only be

used for ashes ; instead of using dust-bins, it is a much better plan for the dust to be put into a galvanized iron pail and carried away each day, as is done in many towns.

108. The inside of the house not only becomes dirty by the dust carried in by the air and the dirt brought in by the feet, but from the odour or smell given out by our skin, and by the lungs with the breath.

This smell or odour is absorbed by all porous substances, as the walls, floors, and ceilings ; it then decays, and gives rise to that close, sickening, unwholesome smell, which is present in all dirty houses, especially such as are overcrowded. No house with such a smell can possibly be a healthy place to live in. This animal effluvium, or smell of decaying animal matter, is taken up by some substances much more readily than others. Walls that are covered with paper smell much more offensively than those that are painted. And in rooms where one paper has been pasted over another the whole thicknesses of paper become very offensive and injurious to health. Painted or lime-washed walls are much to be preferred to papered walls for crowded dwellings and for all sleeping rooms.

Woollen garments, carpets, and curtains absorb these smells freely, and give them out for a long time. Rough wooden floors also take them up, and consequently require frequent washing ; smooth waxed, or painted floors are much preferable to rough wooden ones.

109. The wholesomeness of a dwelling is much increased by its being frequently white-washed.

White-wash is made by pouring water on cakes of whiting, and stirring until the liquid is like a thin cream, when a small quantity of warm size or dissolved glue is then added, to prevent the colour from rubbing off when dry. White-wash is applied with a broad, flat brush, working in a uniform direction up and down the wall. It is requisite first to remove the dirt and the old white-wash by washing it away with a brush and abundance of clean water.

110. **Lime-washing** is a much more effectual mode of purification than white-washing, but is not so often used, as few persons know how to make lime-wash. If glue is used, it is destroyed by the lime, and the wash easily rubs off the walls when dry. This also happens if the lime be simply slaked in water and used without any fixing material. Lime-wash should be made by placing some freshly-burned quick-lime in a pail, and pouring on sufficient water to cover it; if the lime is fresh, great heat is given out; boiled oil (a preparation of linseed oil, sold by all oilmen) should then be added, one pint to each gallon of wash. For cheapness, any refuse fat, such as dripping, may be used instead of the boiled oil. The whole should then be thinned with water. The brush should not be left in the lime-wash or the bristles will be destroyed. Should coloured wash be required, one pound of green vitriol added to every two gallons of wash gives a very pleasing drab.

Quick-lime slaked with skimmed milk, and afterwards thinned with water, makes an excellent wash for out-door walls, as it is not acted on by the weather.

Lime-washing is strongly recommended as a means

of purification, more especially when any infectious disorders are prevalent.

111. Floors should not be scrubbed so frequently as is often recommended ; once a week is generally quite sufficient. In damp weather wet floors do not dry, and the house remains damp and cold for a considerable time ; it is better, in all cases, to defer the scrubbing even for a week, than to wet the floors on a rainy or foggy day. In cases of illness this is particularly important ; so injurious is damp air to invalids, that in some hospitals the floors are waxed, and dry rubbing used instead of scouring, with great advantage to the health of the patients.

It should be a fixed rule that floors, particularly those of sleeping-rooms, are to be scrubbed only on dry days, and, where the health of the inmates is delicate, the drying should be quickened by lighting a fire in the room.

Kneeling when scrubbing sometimes causes a painful disease of the knee-joint called "Housemaid's Knee." In order to prevent, as much as possible, this complaint, a thick soft mat should always be used to kneel upon. In some parts the scrubbing is done by men with a heavy stiff brush fixed to a long handle, like house-brooms.

112. No dirty old lumber should ever be allowed to collect in the house ; bones, old shoes and boots, old dirty woollen clothes, and pieces of carpet, are often kept : these render the air of the house impure, and consequently unwholesome, are exceedingly apt to become mouldy, harbour vermin, serve as breeding-places for the clothes-moth, and retain most tenaciously any infection to which they may have been exposed.

Such things should always be got rid of; if not sold at once, if of any value, they had better be given away, or even burnt, rather than kept to render the air of the house impure and unwholesome. The Jews are remarkable for their good health and great freedom from infectious and contagious diseases: this is doubtless in great part owing to the annual cleaning of the houses, when every part of the dwellings is thoroughly cleansed in the most perfect manner.

113. The washing of dirty clothes is usually done with the aid of soap, soda, and washing preparations; chloride of lime being sometimes also used.

Washing-soda softens the water; it also possesses great powers of cleansing, as it removes stains and dissolves dirt and grease, rendering less rubbing necessary.

Soda must not be used with coloured clothes, as it changes many colours. If white clothes, after being washed with soda, are not perfectly freed from it by rinsing in pure water, they will turn very yellow when heated or ironed, or even in drying or airing before the fire. Once produced, this yellow colour is very difficult to get rid of.

114. **Borax** is much better than soda for fine, delicate things; it is very much used by the French laundresses, as it saves soap, and does not injure the finest laces. It is used in the proportion of a handful to ten gallons of water.

115. Soap is made of caustic soda and fat: the latter renders the soda less destructive, but does not take away its power of loosening dirt. The best soap is by far the cheapest to use, as the common kinds contain a great deal of water, which makes the soap very

soft, and causes it to dissolve very quickly when used. It is most economical to buy soap in bars, and then cut it up into small pieces to dry before use.

116. **Washing preparations** and powders are very similar to soda in their action, some of them being very cleansing, and even corrosive in their properties. When used, the greatest care should be taken to rinse the clothes thoroughly after washing, so as to remove every portion, or the clothes will soon be weakened by their action.

117. **Chloride of lime** is often used to remove stains, but it must be employed with great caution, as it is corrosive, and destroys all the colours of almost all dyed fabrics.

118. The following practical directions on washing were furnished by an experienced laundress :—

“ Wash as often as convenient. Dirty clothes put by for weeks are more difficult to clean the longer they remain dirty; they acquire a permanent bad colour, and in damp places are apt to become mildewed and rotten.

“ Remove all stains as soon as possible; leave nothing long enough to fix itself thoroughly to the cloth; wash out grease, gravy, and fruit-stains, &c., before putting anything on one side. Fruit-stains yield readily to bleaching-powder,—especially if, after being put on, it is moistened with a drop of some acid, as vinegar or lemon; but neither acids nor bleaching-powder should be used to coloured things. Inkstains should never be put into soapy or soda water or lye, as they directly become iron-moulds; but should be instantly wetted with clean water, and may be at once removed by the application of a little

salt of lemon, or oxalic acid, which should be washed out immediately.

" After making starch, cover it with a plate until required for use ; otherwise it forms a useless skin on the top. To prevent starch sticking to the irons, the addition of a small piece of solid paraffin, as the end of a paraffin-candle, will be found more cleanly and efficacious than tallow.

" When water has once been made to boil, the fire in the copper or grate may be very much lessened, as but little heat is required to keep it at the boiling point. There is no advantage whatever in making water boil furiously, for it is not in the slightest degree hotter than when merely simmering, as all the extra heat given to boiling water goes off in the steam, without raising the heat in the slightest degree.

" The shrinking and discoloring of woollen articles may be in great part prevented by care in washing them. They should never be washed in hard water, nor in water softened by soda, nor should they be rubbed with soap. The fibres of wool are covered with little points, all directed one way; as the woollen is rubbed, these become tangled together, and form a kind of thick felt, by which means the article is shrunk and thickened. For the same reason it is not desirable to wring woollen things. Before washing, they should be well brushed and shaken, to get rid of the dust ; rain, or soft river, water should have a strong lather made in it with soap, or, if the things are very greasy, ox-gall may be added, in the proportion of half-a-pint to six quarts of water ; then boiling water should be added to the lather, to make it as hot as it is possible to bear the hand in, and the dirty woollen

should be put in, and dipped and raised repeatedly for several minutes. It should then be squeezed (not wrung) as dry as possible from the dirty, slimy liquor, and the process, if necessary, repeated with some clean lather. If the article is not very dirty, and becomes quite clean in the first washing, the second washing may be in hot water only, without soap ; and in either case, a blue bag should be used in the last water. When gall has been used, a third water is necessary to take off the smell. When the article is finished, it should be squeezed as dry as it can be, and dried as quickly as possible in the open air, if the weather is fine.”

CHAPTER XVII.

CLOTHING.

119. PROPER clothing is necessary to health, for when the skin is cold, and we feel chilly, the blood is sent to the internal organs of the body in increased quantity, and the perspiration and proper action of the skin being checked, ill-health is always caused ; sometimes more serious results occur, and colds, and even other more dangerous diseases, are produced.

120. All persons should be clothed so as to feel warm and comfortable in cold weather ; no person who always feels chilly can ever be in good health.

"The clothes should be loose, so as not to impede muscular movement, and in the case of young girls nothing should be done to support the spine by stays or other contrivances. To make a girl tightly brace herself with stays is a great mistake. Her ribs should have the fullest play, and her clothes should be as loose as those of a boy, and for the same reason, viz., that every muscle may have unrestricted play, and that the lungs may expand without impediment. For both sexes girdles and belts, which especially bind the lower ribs, should be avoided."¹

¹ Dr. Parkes.

121. Keeping the feet dry and warm is exceedingly necessary for all those persons predisposed to cold, or whose constitutions are delicate ; wearing worsted stockings in winter is, in such cases, particularly desirable.

122. Cotton, being warmer and cheaper than linen, is generally employed for under-clothes. Woollen under-garments are, in this climate, essential to health in cold weather : the warmth obtained by wearing flannel next the body keeps up an action of the skin very beneficial to health. Sailors, and all persons much exposed to wet and cold, know the use of wearing flannel next the skin. For delicate children its use is extremely important ; the old practice of trying to make children hardy by exposure to cold when scantily dressed is very wrong ; many weakly ones die under the process.

123. Shoes, as generally made, are very faulty ; naturally the broadest part of the foot is towards the front, and the great toe is in a straight line with the inner side, as shown in the first figure in accompanying engraving. The boots and shoes are usually pointed at the front, forcing the toes together, and producing the deformity shown in the second figure ; so general is this practice, that a natural-shaped foot is never seen in any adult who has worn shoes. Corns and bunions are the result of the constant pressure, and the power of easy walking is greatly interfered with.

The sole of the shoe should always be made with the inner side straight, and not pointed, so as to force the great toe over the adjoining toes. Shoes of this form are now in very general use with the

richer classes. The shoes of the labouring classes are unfortunately made in large numbers on lasts of the old pointed shape, and it will probably be some years before the right form of shoe reaches the working classes of this country. The high heels which are now used by some women are excessively injurious; the weight of the body is thrown forward on the toes, which are tightly thrust into the fore part of the shoe, and the foolish wearers are crippled.

In taking the measure of the foot, the person should stand on a sheet of paper, and have a line drawn



Sole of Natural Foot.



Sole of Foot deformed
by Tight Shoes.

round the foot with a pencil; the shoe should then be made to fit the foot, instead of endeavouring to fit the foot to the shoe. Children, from the soft state of their bones, have their feet and toes quickly deformed by tight, narrow shoes—a defect which lasts through life, producing, to a greater or less degree, lameness, and consequently inability to take active or long-continued walking exercise.

124. The wooden-soled clogs used in the manufacturing districts keep the feet perfectly dry and

warm in winter, and are exceedingly cheap and durable, a pair costing from 3*s.* to 3*s.* 6*d.*, lasting on the average twelve months ; they are very easy and comfortable to walk in ; for out-door labour in wet weather they far surpass the ordinary shoes in dryness, comfort, and durability ; the greatest objection against their use arises from the noise they cause on stone or wood. Unfortunately, like the boots of the working classes, they are generally made pointed at the toes, and so force the great toe over the others.

125. For boots and shoes exposed to wet the following composition is recommended :—

“ Linseed oil, one gill ; spirit of turpentine, one ounce ; beeswax, one ounce ; Burgundy pitch, half-an-ounce : to be melted together, and rubbed into the leather when quite dry, before the fire or in the hot sun.” This composition will be found very effectual in preserving the leather from both rain and sea-water.

A P P E N D I X.

The following Notes of a course of Twenty Lessons have been prepared by one of the teachers of THE NATIONAL TRAINING SCHOOL OF COOKERY, South Kensington. They are based on the principles taught in that Institution, and were expressly arranged for the use of teachers in the Schools established by THE SCHOOL BOARD OF LONDON.

FIRST LESSON.

LIGHTING A FIRE, MILK AND EGGS, CHILDREN'S FOOD.

To Light a Fire.—In a close stove the first thing is to empty the fireplace. Take out the larger cinders and half-burnt coal with your fingers, and lay them on one side for lighting the fire ; then rake out all the ashes (this can be done with the lids on, then it will not make so much dust). Next take off all the lids, and sweep all the soot carefully out ; once or twice a week the flue pipe must be taken off and cleared out ; also the flues under the oven. The soot should be carried away at once, as it blows about. Then black-lead the stove ; put in a few cinders, lay on them a piece of paper and a few sticks crossing one another, on these lay very lightly some pieces of half-burnt coal and a few cinders, leaving space for draught. Do not fill the grate full, put the lids on, draw out the damper, light the fire, and shut the front door. An open fire is lighted in much the same way. There are no flues to clean out ; but the chimney as high as one can reach, and behind the register door, should be cleared from soot daily. Having lighted the fire, clean the fire-irons, carry away the small cinders and dust to be sifted, and wash the hearth.

To Make Tea and Coffee.—Rinse the kettle and fill it from the tap (not the boiler). When it boils make your tea and coffee. Warm the teapot : allow one teaspoonful to each person and one for the pot. After filling the teapot, let it stand five minutes. Broken-leaf good tea is better than cheap tea ; it does not take so much of it to make a good cup of tea. Warm your coffeepot. One ounce or one tablespoonful of ground coffee will make a pint. Pour on it one and a quarter pint of boiling water ; let it stand five minutes ; clear by pouring in a little cold water and letting it stand a few minutes. This coffee could have a little more water added after the first pint had been poured off for the children. Neither tea nor coffee is good if made with water that has remained in the kettle for many hours.

To Boil an Egg.—Put it gently into a saucepan full of boiling water (and don't let it boil hard) for three minutes.

To Poach Eggs.—Break the eggs one by one into a good-sized saucepan of boiling water, with a teaspoonful of salt in it. Draw the saucepan to the side of the fire and let them be in four minutes. Take them out with a slice.

To Beat up an Egg for an Invalid.—Choose a fresh one ; break it into a cup and beat it lightly two minutes with a fork. Raw eggs are considered more digestible with a spoonful of water or milk added to them. Wine is frequently used.

Thick Milk.—To one pint of milk stir one tablespoonful of flour and a pinch of salt ; boil over the fire for ten minutes, stirring all the time. An excellent breakfast for children.

Infants' Food.—Flour baked in a slow oven till of a light fawn, or put in a basin tied over with a cloth and boiled six hours. Crush the lumps, mix smooth with cold water, and boil three minutes. Add milk and sugar. Pap made with bread, being fermented, is apt to turn sour, and that made from biscuits is objectionable from the butter in them.

Teacup Puddings.—One dessertspoonful of corn-flour, half pint of milk, six lumps of sugar, a few grains of salt ; stir these on the fire to boil five minutes, add one egg, beat up until well mixed ; pour this into a buttered cup, and boil twenty-five minutes.

Milk Porridge.—Put on one pint of skim-milk to boil, mix one tablespoonful of oatmeal with two of milk very smoothly. When the milk boils, pour it in and stir over the fire for ten minutes.

Batter Pudding.—Beat up an egg with one tablespoonful of flour and a grain of salt, add by degrees a cupful of milk, stirring vigorously. Boil half an hour in a greased cup.

Rice Milk.—Put half a pint of milk on to boil, take from it two tablespoonfuls to mix smooth with one dessertspoonful of ground rice. Pour this into the boiling milk and stir over the fire ten minutes. N.B. It is most essential that all farinaceous foods should absolutely boil in the milk or water. Starchy foods should never be given to children made with water alone, as they are not nutritive without the albumenoid principles the milk contains.

Materials required for Lesson :—6 eggs, 2 qts. of milk, 2 ozs. of lump sugar, 2 oz. of moist ditto, 2 oz. of corn-flour, $\frac{1}{2}$ oz. of ground rice, $\frac{1}{2}$ oz. of salt, 1 lb. of flour, $\frac{1}{2}$ oz. of tea, 1 oz. of coffee, 1 oz. of oatmeal, $\frac{1}{4}$ oz. of butter.

SECOND LESSON.

ROASTING, AND THE PUDDINGS EATEN WITH ROAST MEAT.

To Roast a Joint.—Have a clear fire and the stove and hearth well swept up so that there is no occasion to make a dust while the meat is down. Allow a quarter of an hour to each pound of meat, and one quarter of an hour over. White meats, such as pork and veal and very thick joints, want a little longer. Put the meat close to the fire for five minutes, then draw it further away. This is to close up the pores of the meat and keep the gravy in. Baste it frequently ; see that it does not burn. If in a Dutch oven turn it from time to time, so that it is equally done. Some roast meats are stuffed.

Stuffing.—Veal, heart, rabbit, and chicken, are stuffed with the following : One tablespoonful of bread crumbs, one of chopped suet, half of chopped parsley, one teaspoonful of lemon-thyme and marjoram, a little pepper and salt, mixed together with an egg or a little milk. Pork, geese, and ducks are stuffed with sage and onions as follows :—Boil two onions half an hour, lay a thick slice of bread in the water five minutes, drain them very dry, chop them finely with a teaspoonful of chopped sage leaves, pepper and salt to taste.

To Make Gravy for Roast Meat.—Take any bones, scraps of cold meat, or trimmings of the joint, put them in a half pint of water with a little salt and half an onion, let them stew all the time the meat is roasting : colour with a little burnt sugar. When the meat is done pour the dripping from it carefully into a basin, leaving the gravy at the bottom of the tin ; strain the gravy you have made to this, let it boil, and pour round (not over) the

meat. If the gravy is liked thick put a dessertspoonful of flour, mixed into a smooth paste with two of cold water into the saucepan five minutes before you strain it.

To Roast a Heart in a Stewpan.—Clean and trim off the deaf ears, and soak in warm water to draw out the blood. Stuff it with veal stuffing, fasten it up, put it in a stewpan with two ounces of dripping over a very slow fire, or on a hot plate, baste frequently and turn over occasionally. A bullock's heart takes two hours, and a calf's heart one hour. Make a gravy of the trimmings ; a quarter of an hour before serving pour away the fat from the heart and pour the gravy in.

Yorkshire Pudding.—To every quarter of a pound of flour allow one egg and half a pint of milk. Break the egg into the flour and mix quite smoothly with a little of the milk ; beat it well, let there be no lumps in it ; add the remainder of the milk by degrees ; put the pudding tin under the meat to catch some dripping, then pour in the pudding and bake half an hour.

Suet Pudding.—Chop fine half a pound of suet, mix it with one pound of flour, one teaspoonful of baking powder, and a pinch of salt ; make it into a stiff dough with cold water or milk. Dip a pudding cloth in boiling water, dredge well with flour, put in the pudding, tie it securely, but leave it room to swell. Boil in plenty of water one hour and a half. Or grease a pint and a half basin and put it in, tie a cloth over and boil two hours.

Norfolk Dumplings.—Mix half a pound of flour with half a teaspoonful of baking powder and a pinch of salt, make into a light dough with cold water ; form into small balls, put them into boiling water immediately, and boil for twenty minutes.

Materials required for Lesson :—A joint, 1 heart, 10 oz. of suet, $\frac{1}{2}$ qtn. of flour, $\frac{1}{2}$ pint of milk, 2 eggs, baking powder, a small bunch of herbs, two sprigs of parsley, pepper, salt, and bread.

THIRD LESSON.

BOILING.

To Boil Meat.—To keep all the goodness in the meat it is essential to put it into boiling water sufficient to cover it, to draw the saucepan or pot to the side of the fire, and let it simmer gently all the time it is cooking. When you boil meat to get the goodness out, as in soups and broths, it is put into cold water and very gradually brought to the boil. Allow a quarter of an hour to each pound and a quarter of an hour over, for beef and

mutton ; veal and pork want twenty minutes to the pound. Boiled meats are not stuffed. Vegetables that are eaten with boiled meats are generally boiled with them ; this is a good plan, as both are improved ; but cabbage must always be excepted as it gives a strong flavour to anything boiled with it. The liquor in which meat has been boiled should never be thrown away as it can be made into many nice soups. Sauces or gravies of boiled meat are always poured over them. Boil salt beef with carrots and turnips. The carrot cut in four takes one hour to boil, and the turnip half an hour. Always keep the saucepan in which meat is boiling well skimmed.

Rabbit and Pickled Pork.—Ostend rabbits are cheaper than English ones. They come over skinned and cleaned. English rabbits require skinning and paunching. Wash the rabbit well in cold water, cut off the legs at the first joint, clear out all the blood from the head and neck, truss it into a proper shape, put it into boiling water, and let it boil gently for one hour, if a large one ; forty minutes will cook a small one. Pickled pork to eat with rabbit is boiled in the same saucepan. A thin piece of four pounds will be done in an hour, but a leg of pork weighing eight pounds will take three hours. Wash it and scrape it and put into the boiling water with the skin uppermost. Keep it well skimmed. Pease pudding is generally served with boiled pork, or in summer-time beans. Boiled rabbit is served with parsley and butter or onion sauce.

Tripe.—Wash it clean and put it on to boil in plenty of water with four or six onions. Boil one hour and a half, strain off all the liquor, mash the onions, pour in a cupful of milk thickened with a dessertspoonful of flour, pepper and salt to taste, and a piece of butter the size of a nut ; mix all well together and boil ten minutes.

Cow-heel.—Get a ready-dressed cow-heel, put it on in a pint and a half of milk with an onion in it ; let it boil till the bones will slip out. The milk strained and sweetened is very nourishing hot or cold for children. The heel is eaten with a little parsley and butter made as follows :—Put half an ounce of butter into a little saucepan to melt, stir smoothly into it a quarter of an ounce of flour, pour into it by degrees a quarter of a pint of the liquor in which the meat was boiled (or plain water), stir till it boils, move it to the side of the fire, chop a teaspoonful of parsley, washed and *dried*, stir into it, and serve directly.

Materials required for Lesson :—Meat, rabbit, 2 lbs. of pickled pork, 1 lb. of tripe, a cow-heel, carrot and turnip, butter, flour, milk, parsley, onions.

FOURTH LESSON.

SOUPS AND BROTHS.

Soups can be made of anything that is eatable ; the most sinewy pieces of meat, the heads, tails, and feet of animals—which contain much gelatine—make good soup. So do bones, and vegetables alone make very good soup. If you have any pot liquor, in which meat, or even suet puddings, or carrots and turnips, *not greens*, have been boiled, use it instead of water to make your soup. In making soups three things are specially to be borne in mind. 1st. The scum must be taken off before it boils, or it will boil down and thicken the soup. And all the fat should be taken off. 2nd. Simmer very softly ; if soup boils rapidly it spoils. 3rd. Never let soup get cold in the saucepan, turn it out into an uncovered shallow pan.

Bone Soup.—Take three pounds of bones, cooked or uncooked, pieces of meat, or scraps or trimmings. Fry the pieces of meat with an onion in dripping till brown, put them on with four pints of water ; when near boiling throw in a dessert-spoonful of salt to raise the scum, skim it well. When it boils put in two carrots, two turnips, one parsnip, a bunch of herbs, and two or three sticks of celery, a blade of mace, and fifteen peppercorns. Let it simmer gently two hours. Strain it, and return to the saucepan with the vegetables cut in slices, and thicken it with corn-flour, or common flour, one dessert-spoonful to a pint. Colour, if liked, with burnt sugar.

Ox-tail.—Cut the tails in joints, flour them, and fry brown in a little dripping, with half an onion cut in rings. Pour off the dripping and put in four pints of cold water, two carrots, two turnips, half a head of celery, all neatly cut. When near boiling add half a teaspoonful of salt, skim well, put in a bunch of herbs and ten peppercorns. Let it simmer four hours, thicken with two tablespoonfuls of flour.

Leg of Beef Soup.—Take four or five pounds of leg of beef, cut off the meat, break the bone and take out the marrow, fry the meat in it a light brown, with two onions, one turnip, one carrot, half a head of celery, all cut up, put in six pints of water and let it boil, throw in a dessert-spoonful of salt, skim, and let it boil fifteen minutes ; then put in a bunch of herbs, ten peppercorns, and ten allspice berries. Let it simmer slowly five hours. This soup is clear, so is not thickened.

Carrot, Onion, and Potato Soups.—Boil six carrots, two or three large onions, and three ounces of dripping, with a bunch of herbs, a leaf of celery, half a parsnip, and a turnip in four quarts

of water or pot liquor an hour and a half. Take out the carrots, pass them through a colander, strain the soup to them, season to taste, boil five minutes and serve. Onion soup is made the same way, only reversing the proportions of onions and carrots. For potato soup, which is very good, the potatoes are boiled or steamed separately, then mashed and added to the strained soup ; four pounds would be required for four quarts of soup. All vegetable soups are best eaten the day they are made.

Haricot Purée.—Soak one pint of beans all night, boil them four hours in two quarts of water, with an onion sliced, pass them through a sieve or colander, season to taste, add one pint of milk, let it boil five minutes and serve.

Materials required for Lesson :— 1 oxtail, 4 or 5 lbs. of leg of beef, 4 lbs. of bones, 12 onions, 1 bunch of carrots, $\frac{1}{2}$ of turnips, 2 parsnips, herbs, head of celery, 4 lbs. of potatoes, 1 pt. of haricots, $\frac{1}{2}$ pound of flour, $\frac{1}{4}$ of an oz. each of peppercorns, mace, and allspice, $\frac{1}{4}$ lb. of dripping, 1 pt. of milk, pepper and salt.

FIFTH LESSON.

STEWs.

Stews are at once the simplest and most economical of all ways of cooking, for whatever goodness is taken out of the meat in the cooking we get in the gravy, and the most inferior parts of meat, properly stewed, are palatable and nourishing. Stews can be made either in saucepans or stone jars, cooked on the hob or in the oven ; in the latter case the vegetables are put in with the meat in the *cold* water ; in the former they are added when it comes to the boil, never between the two points. They are flavoured with carrots, onions, herbs, &c., and thickened with rice, barley, sago, flour, and potatoes. Stews must only simmer ; they are spoilt by boiling.

Beef à la Mode.—An ox-cheek, a cow-heel, six onions, three carrots, one ounce of dripping, flour, pepper and salt. Cut the cheek up, flour the pieces well, and put them with the dripping into a saucepan to brown ; cut up the vegetables and the cow-heel and put into the saucepan with cold water, one pint to a pound, season to taste, cover close, and let it simmer for three hours. Thicken the gravy with two tablespoonfuls of flour mixed with one of ketchup and one of water into a smooth paste.

Brazilian Stew.—This stew is made by dipping inferior parts of beef or mutton into vinegar—which has the power of softening the fibres and making them tender. Take four pounds of shin of beef, clod, or sticking piece, cut it into small pieces,

dip each piece into vinegar, put them with four onions, two carrots, two turnips, pepper and salt into a saucepan, without any water, and let it simmer very gently three or four hours.

Giblets.—Wash and pick two sets of chicken's or duck's giblets, scald the wings, heads, and feet to get the feathers off and the skin and claws off the feet, roll them in flour; put the gizzards on first in half a pint of water with an onion, six peppercorns, and a little salt; when they have stewed an hour put in the rest of the giblets, with one pint more water and a bunch of herbs: let them stew another hour.

Mutton Haricot.—Cut the neck or scrag of mutton into chops, fry them in a little dripping with one onion cut in thin slices, pour off the dripping, and put in one pint of water thickened with a tablespoonful of flour, one carrot, and one turnip cut in slices, cover close and let it stew one hour.

Ragout of Rabbit.—Wash and clean a good-sized Ostend rabbit; boil the liver and heart, chop them and mix with veal stuffing, fill the rabbit, sew it up, and tie it into shape. Put a piece of fat beef and one pound of bacon, cut in slices, into a saucepan with one ounce of dripping, put in the rabbit to brown, turning it over to brown both sides, pour off the dripping, and put in one quart of water. Let it simmer gently an hour and a half. A quarter of an hour before serving skin off all the fat and thicken the gravy with a little corn-flour; season with pepper and salt, and, if liked, stew a bunch of herbs and half an onion with it. Lay the rabbit on a dish, with the bacon round it, and pour the gravy over.

Materials required for Lesson:—Ox-cheek, cow-heel, shin of beef, neck of mutton, rabbit, herbs, parsley, vinegar, dripping, flour, ketchup, bacon, giblets, onions, carrots, and turnips.

SIXTH LESSON.

BAKING.

Baking is not the most economical way of cooking joints of meat; but as it requires very little attention, and is very savoury, it is a favourite mode with many people. The best way of baking meat, is enclosing it in crust, it makes a little meat go a long way.

Baked Pork.—We cut the rind of the pork through with a sharp knife at regular distances; stuff it with sage and onions, and put it in a dish in the oven. Potatoes or batter pudding, are better baked under any other meat than pork. Turn it

about in the oven that every part gets equally baked, and allow twenty minutes to the one pound for pork, and fifteen for beef or mutton. Baste frequently, and when it is done, put it on a hot dish ; and pour all the dripping out of the baking dish and pour a little boiling water, and stir it round to make gravy, which pour round, not over the meat. Apple sauce is eaten with roast pork.

Poor Man's Goose.—Wash a pig's fry and dry it well in a cloth, cut the liver and heart into slices ; flour it and lay it in a baking dish, season it with pepper, salt, and a teaspoonful of chopped sage leaves, and one onion chopped fine, pour in a gill of water, cover it with the caul, and bake three-quarters of an hour in a moderate oven.

Toad in the Hole.—Six ounces of flour, one egg, one pint of milk, a pinch of salt. Break the egg into the flour, stir in the milk by degrees, so as not to get it lumpy. Lay your meat or ox kidney cut in slices in a greased tin or pie-dish, pour the batter over and bake one hour to one and a quarter. Batter is better for standing before it is cooked.

Meat Pie.—Make a crust of three quarters of a pound of flour, three quarters of a teaspoonful of baking powder, and quarter of a pound of dripping, with a pinch of salt. Rub the dripping into the flour, mix in the baking powder and salt ; make into a paste with one gill and a half of water, or enough to make a stiff paste (this depends on the quality of the flour). Flour your board, rolling-pin, and hands ; roll your paste a little larger than your pie-dish ; cut your meat in slices, lay it in season with pepper and salt, fill two-thirds with water ; cut a strip off your crust to lay on the edge of the dish, wet the edges, lay your crust on, trim it neatly round, decorate with the remains of the pastry, and bake one and a half hours. Two pounds of meat will fill a quart dish.

Cornish Pasties.—The crust the same as the last, or made with suet in the same manner, rolled very thin, divided into pieces about eight inches square. On each piece put one ounce of meat and one ounce of potato seasoned, fold and pinch the edges together, and bake on greased tins one hour.

Baked Apple-dumplings.—Same crust as above ; peel six apples and core them without dividing them, divide the crust into six pieces, lay an apple on each, and work the crust over it till the apple is covered without any cracks. Bake half an hour.

Materials required for Lesson :—Pork, 1 lb. of pig's fry, 3 lbs. of meat, $\frac{1}{2}$ lb. of potatoes, 1 pt. of milk, 1 egg, 1 qtn. of flour, 6 apples, 1 lb. of suet or dripping.

SEVENTH LESSON.

FRYING.

Frying is simply boiling in fat. It is not economical, but as it is very expeditious, owing to the fat attaining a greater heat than water, and so cooking anything put into it, in a very short time, it is very useful, though it is very seldom properly done. The great art in frying is to have the fat hot enough, and to have the article fried immersed in the fat, if not the fried food is always sodden and greasy. It is not wasteful to use a large quantity of fat in frying, as the same fat will do over and over again by occasionally melting it, and pouring it into cold water, when the impurities sink to the bottom. When anything fried is taken out of the fat it should be laid on whitey-brown paper to drain for a few minutes.

Sausages.—Sausages, should be pricked in two or three places before they are put in the frying-pan, to prevent their bursting. They are fried dry, as it is called, *i.e.* without being plunged in boiling fat. Put an ounce of dripping into the frying-pan, when it boils put in the sausages. Move them to get brown all round. Seven minutes on a good fire will do them. Serve on a piece of fried bread, or mashed potatoes.

Liver and Bacon.—Wash your liver, but do not soak it. Wipe it dry, cut it in thin slices, and flour each piece. Cut the rind off the bacon, and cut it into thin rashers. Fry the bacon first ; and put it on a hot dish before the fire while you fry the liver in the fat, which came from the bacon. When the liver is done lay it on the bacon ; mix a dessertspoonful of flour smooth with a cup-full of water, add a pinch of pepper and salt, pour it into the frying-pan, stir over the fire till it boils, and strain over the liver and bacon.

Tripe.—Tripe is cut into pieces about three inches square, and dipped into a batter made of six ounces of flour, one tablespoonful of oil, or one ounce of butter, half a pint of tepid water. Mix the oil with the flour, add the water by degrees ; whip the whites of two eggs to a stiff froth, stir into the batter, dip the tripe in, throw it into a saucepan of boiling fat, let it fry three or four minutes, take it out and drain.

Fritters.—Are slices of meat, or fruit, or cake dipped in batter and fried the same way.

Fried Potatoes.—Cold potatoes cut in slices, or raw potatoes cut in slices or ribbons, are fried by throwing them into boiling fat.

Pancakes.—Pancakes are made with four ounces of flour, half a pint of milk, and one egg mixed smoothly. A piece of lard or dripping the size of a nut is put into the pan for each pancake. This quantity makes six.

Omelets.—Omelets are made by beating up two eggs with a dessertspoonful of sugar for sweet omelets, or for savoury with chopped herbs, parsley, onion, or bacon ; put half an ounce of butter into the pan, pour in the omelet, stir till set, and fold in half. Omelet soufflée is made by beating the whites of the eggs to a froth and mixing with the other ingredients.

Materials required for Lesson:—1 lb. of sausages, 1 lb. of liver, 1 oz. of butter, $\frac{1}{2}$ lb. of bacon, $\frac{1}{2}$ lb. of tripe, 1 lb. of fat, 2 apples, 1 potato, $\frac{3}{4}$ lb. of flour, 8 eggs, $\frac{1}{2}$ a pint of milk, parsley.

EIGHTH LESSON.

BROILING.

Broiling is one of the most difficult ways of cooking meat. It requires a clear fire, no smoky coals ; no fork should go into the meat to let the juices out. Well broiled meats are very easy of digestion. The bars of the gridiron should always be rubbed with suet or fat, to prevent the meat sticking. When the fire is not clear, broiling is often done in front of the fire, but the flavour of meat broiled over the fire is superior. Broiling is adapted for small slices of meat or fish ; when chickens are broiled they are split in half. Fish is often broiled wrapped in buttered paper.

Steak.—A steak or a fillet from the leg of mutton should be peppered on both sides, and broiled for five minutes on each side. A warm plate should be ready for it, on which has been mixed half an ounce of butter, one teaspoonful of chopped parsley, a little salt. This is called *maitre d'hôtel* butter.

Mutton Chop.—A chop takes the same time ; this generally has a teaspoonful of ketchup, and a piece of butter the size of a nut, with a pinch of pepper and salt put on it when it is taken from the gridiron. A chump chop is the most economical.

Kidney.—Kidneys are split and skewered open, they require thorough cooking ; bullock's kidney quarter of an hour ; a piece of butter is laid on them when taken from the gridiron.

Sprats.—These should be washed and rubbed dry in a cloth, a skewer should be run through the eyes of six or eight to prevent their falling into the fire, and to enable you to turn them all at once. Dried herrings are split down and opened flat, the inside is broiled first, then the outside.

Veal Cutlet.—Veal cutlet for broiling is cut into nice-shaped pieces, a little butter is melted on a plate, pepper and salt is added, each piece is dipped in, and then in bread crumbs (to which some people add a little chopped parsley and herbs or lemon rind). They require ten minutes over a good fire. When they are dished, a squeeze of lemon over them is a great improvement.

Bacon.—Bacon is best broiled or rather toasted in front of the fire, the rashers should be thin, and the rind cut off. The fat which drops from bacon should never be wasted. All broiled meats should be eaten as soon as they are done; off the gridiron on to the plate is the way to get them in perfection.

Mushrooms.—The only vegetable broiled is the mushroom. You must be very careful to get a wholesome one; peel it carefully, grease the bars of the gridiron; lay your mushroom on with the stalk uppermost, do not turn it; in seven minutes it will be full of delicious ketchup, which you must be careful not to spill in taking off.

Materials required for Lesson:—1 lb. of steak, 1 chop, 1 kidney, sprats or herring, 1 lb. of veal cutlet, $\frac{1}{4}$ lb. of bacon, 1 $\frac{1}{2}$ oz. of butter, 1 lemon, bread, parsley.

NINTH LESSON.

USING UP COLD MEAT.

It is an expensive meal to have a dinner of cold meat and pickles. It is not so satisfying as a hot one; in other words, our bodies don't get the same amount of nourishment out of it. In warming up cold meat, it should not be overheated as it does not require to be cooked any more.

Hash.—Hash is too often tough meat served up in greasy gravy. Cut your meat all off the bones; put them on with a pint of water for an hour or two, with an onion, half a carrot, half a turnip, and a bunch of herbs to make gravy. Roll your slices of meat in flour, strain your gravy on to them, and let them just come to the boil. Add a tablespoonful of ketchup, or one or two pickled walnuts chopped up.

Shepherd's Pie.—Cut up any scraps of cold meat, season to taste, sprinkle over a few fine herbs, put them in a pie-dish, pour over a little water. Mash some potatoes with half a gill of hot milk, in which half an ounce of butter is melted. Cover your pie with them, and bake half an hour.

Rissoles of Cold Meat.—Two tablespoonsful of cold meat chopped fine, one of suet, two of bread crumbs, half a tablespoonful of chopped parsley, and half of dried herbs, pepper and salt to taste, half an egg. Mix all together, roll into balls, egg and bread crumb, and fry a light brown.

Meat Patties.—Three quarters of a pound of flour, a quarter of a pound of dripping, one teaspoonful of baking powder. Mix into a stiff paste. Roll out a quarter of an inch thick. Grease your patty-pans, line with paste; put in cold meat cut up neatly, seasoned with pepper and salt, and herbs, cover with crust, trim the edges neatly round, and bake half an hour.

Goblet Pie.—Scraps of cold meat two ounces, apples chopped two ounces, suet two ounces, raisins two ounces, currants two ounces, sugar two ounces. Mix, put into a pie dish, and cover with a crust made as above.

Curry.—Fry an onion, cut in slices, and an apple finely chopped, in two ounces of dripping, mix a dessertspoonful of curry powder and one of flour in half a pint of water; stir it over the fire with the onions, etc., till it boils. Strain it. Put back in the saucepan with some slices of cold meat and a little salt till the meat is thoroughly warm.

Materials required for Lesson:—Cold meat, carrot, onions, turnip, herbs, parsley, 1 lb. of potatoes, $\frac{1}{2}$ lb. of dripping, $\frac{1}{4}$ lb. of suet, bread, 3 apples, $1\frac{1}{4}$ lb. of flour, curry powder, 1 oz. of butter, 1 egg, 2 oz. of raisins, 2 oz. of currants, 2 oz. of moist sugar, and $\frac{1}{2}$ oz. of curry powder.

TENTH LESSON.

AUSTRALIAN MEAT.

Australian meat being already overcooked in the process of preserving, great care must be taken to cook it as little as possible.

Meat Pie.—Make a crust of three-quarters of a pound of flour, and one quarter of a pound of dripping, and three-quarters of a teaspoonful of baking powder. For a quart dish, take two pounds of Australian meat, or a pound and a half of meat and half a pound of kidneys. Season to taste, pour in a little water,

cover, and bake half an hour. This can be made into a pudding in a quart basin.

Brown Stew.—Fry a little chopped onion in one ounce of dripping, stir in half an ounce of flour, and mix smoothly with half a pint of water. Lay in one pound of Australian meat cut in slices, and a teaspoonful of chopped herbs. Let it warm through, and serve.

Mince Meat with Mashed Potato.—Take one and a half pound of potatoes boiled and mashed with half a gill of milk, with half an ounce of butter melted in. Build a wall round the dish. Mince half a pound of Australian meat very fine, warm it up in a saucepan with a tablespoonful of ketchup or gravy, and a piece of butter the size of a nut, season to taste, and put it in the middle.

Irish Stew.—Boil one pound of potatoes and four good-sized onions half an hour, drain off the water, and mash them. Lay in slices of Australian meat seasoned to taste, and let it simmer fifteen minutes. Mind it does not burn.

Rissoles of Australian Meat.—Make a crust of half a pound of flour, half a teaspoonful of baking powder, and a quarter of a pound of dripping, with sufficient water to make a stiff paste. Roll it thin, cut it into rounds the size of a breakfast cup, lay a little minced meat well seasoned on each, fold the edges together, pinch them to make them stick, egg and bread crumb, and fry in hot fat.

Mulligatawny Soup.—Pour over two pounds of Australian meat two quarts of warm water. Fry a carrot, a turnip, two onions and two apples in a little fat, pour over them half a pint of the liquor from the meat, boil till reduced to one gill. Make a paste of one tablespoonful of curry powder, two of flour, and a little water, stir in, add a spoonful of salt and half of sugar, the meat, and the liquor. Let it simmer two hours, strain, and put into it a two-pound tin of calf's head. In opening a tin of Australian meat, only remove the fat from the part you are going to use. The fat put into boiling water to clarify it is very good for pie-crusts.

Materials required for Lesson :—6 lb. tin of Australian meat, $2\frac{1}{2}$ lb. of potatoes, 6 onions, $\frac{1}{2}$ lb. of dripping, baking powder, 1 oz. of butter, $\frac{1}{2}$ gill of milk, $1\frac{1}{4}$ lb. of flour, carrot, turnip, apples, curry powder, calf's head, 1 lb. of fat for frying.

ELEVENTH LESSON.

FISH.

Boiling fish is by no means so savoury or so satisfying as any other way of cooking it ; but it is generally adopted for cod, brill, and salmon. Very oily fish, such as salmon, mackerel, eels, are also frequently boiled. Salt cod is always boiled ; but as the goodness is nearly all taken out in the salting and the soaking, salt cod is by no means a cheap food, even if it costs very little money. Fish should be put into boiling water sufficient to cover it, the saucepan should then be moved to the side of the fire and kept just below boiling point until the fish is done, which is shown by its leaving the bone, and the fins or tail pulling out easily.

To Bake a Haddock.—Clean it carefully, scrape the scales off, and stuff it with half a tablespoonful of chopped parsley, one quarter of herbs, and one tablespoonful of bread crumbs worked together with a bit of butter, and seasoned to taste. Sew up the fish. Rub it over with a little melted butter or dripping, roll it in bread crumbs, lay on a greased tin, and bake from half to three quarters of an hour. Any fish can be done the same way, proportioning the quantity of stuffing and the time of cooking to the size of the fish.

Fried Fish.—Large fish when fried are cut in fillets, small fish are fried whole. Fish is either egged and rolled in bread crumbs, or dipped in batter made of flour and water, before it is fried.

Grilled Fish.—Mackerel, herring, pilchards, and dried salmon are generally grilled. The gridiron bars must be greased, and the fish peppered before it is put on. When it is done, a little salt and, if liked, a small piece of butter is put on. Fish is very delicate wrapped in greased writing paper to broil.

Potted Fish.—Cut fresh herrings or mackerel in thick pieces, pack them in a stone jar with plenty of peppercorns, a blade of mace, a shallot, a pinch of salt, a bay leaf, a gill of vinegar. Tie the lid down, and let them cook several hours in a very slow oven. They are well cooked if left in a baker's oven all night.

Materials required for Lesson :—Mackerel, haddock, plaice, herrings, cod, 1d. of bread, herbs and bay leaf, parsley, $\frac{1}{2}$ oz. of butter, 2 oz. of dripping, 1 gill of vinegar, spices, 1 lb. of fat for frying.

TWELFTH LESSON.

VEGETABLES.

Potatoes.—How to cook a potato. Potatoes vary very greatly in quality. Some potatoes are best boiled, and some steamed ; some do best cooked in their skins, and some require peeling first ; some cook in twenty minutes, some in thirty ; some will only bake. As a general rule, it is more economical to boil potatoes in their skins ; but they must be boiled gently, and the water strained off directly they are done, for if they break in the water there is great waste. The skins must be carefully scrubbed quite clean before they are boiled. When potatoes are very old they acquire an unpleasant taste if boiled in their skins. Potatoes must never boil hard. Potatoes are best put into cold water with plenty of salt in. New potatoes are put into boiling water ; they take longer to boil than old potatoes. Potatoes take longer to steam than to boil. They take about an hour to bake. To see if they are done run a fork in.

Greens, Savoys, and Cabbages must be boiled in plenty of water, with a tablespoonful of salt to every half-gallon. They must be kept well stirred down, and if boiled with the lid off will want no soda to keep them green, unless the water is very hard. The time required to cook them depends upon their age. The stalk should be split up, so that it gets done as soon as the green part.

Peas want plenty of water with salt in ; soda makes their outer skin crack. They take from fifteen to thirty minutes.

French Beans are split or sliced, and, if old, strung before boiling. Boil with the lid off.

Carrots, Turnips, Parsnips and Spanish Onions.—Carrots are scraped, turnips peeled thickly to get below the woody fibre, parsnips peeled thin or scraped. These roots are generally boiled with meat. If boiled alone, put two ounces of salt to a gallon of water. When put into boiling water, parsnips, onions, and carrots take over an hour, turnips half an hour. Turnips are generally mashed.

Spinach wants well washing, and then it is packed closely into a saucepan and boiled in its own juices. When tender, it is squeezed dry, chopped fine, returned to the saucepan, and warmed up with a little piece of butter.

Cauliflower must be soaked in salt and water to get out caterpillars, &c. Put it into boiling water, and boil from twenty to thirty minutes. Melted butter is generally eaten with it.

Materials required for Lesson :—Cauliflower, 2 lbs. of potatoes, greens or cabbage, peas, beans, 2 oz. of butter, 1 lb. of spinach, 2 carrots, 2 turnips, 2 parsnips, 2 Spanish onions, $\frac{1}{2}$ lb. of salt.

THIRTEENTH LESSON. .

PIES AND BAKED PUDDINGS.

Fruit Pie.—Pie-crust is made either short or flaky according to the way the fat, whether it be butter, lard, suet, or dripping, is put into the flour. For short crust, it is rubbed into the flour before the flour is wetted ; for flaky, it is rolled in afterwards. Short crust is the easiest for beginners. Take half a pound of flour, mix with it half a teaspoonful of baking powder, and rub lightly into it a quarter of a pound of butter, or dripping, or lard. (Suet crust is better for boiling ; but is not good to eat cold.) Wet it with sufficient cold water to make a stiff paste ; the quantity required depends on the quality of the flour. Roll it out two inches larger than the pie-dish it is to cover, fill the dish with fruit, put four tablespoonfuls of moist sugar to a quart of fruit. For dry fruit, as apples, and plums, and green gooseberries, put in half a gill of water ; juicy fruit requires none. Cut a strip all round your paste to lay on the edge of your pie-dish, moisten it slightly, lay on your cover, press the edges together, trim them neatly, sprinkle a little water over the top, grate a little sugar over, and bake half an hour in a moderate oven. This crust would be made richer by mixing the yolk of an egg with the water, and commoner by using only one-third as much lard or dripping as flour, instead of half.

Patties.—Put half a pound of flour into a basin, mix in half a teaspoonful of baking powder, mix it into a stiff paste with cold water (half the yolk of an egg with it makes it richer), flour your board and pin, roll it out very thin, spread a quarter of a pound of butter, lard, or dripping on, as if spreading bread and butter, sprinkle a little flour on it, cut it in eight, lay the pieces on the top of each other, flour the edges, roll it out again, fold it, roll it out one-third of an inch thick, grease your patty pans, cut rounds of paste a little larger, lay them in, fill them with meat cut in dice and seasoned to taste, sprinkle a little water on, cover, press the edges together, trim neatly, and if you have an egg broken, brush them over with it. This flaky crust can be made with one-third or even one-fourth of fat or shortening.

Baked Plum Pudding.—Chop fine a quarter of a pound of suet, put it into three-quarters of a pound of flour with a teaspoonful of baking powder in, pick a quarter of a pound of

plums and chop them, wash, dry, and pick a quarter of a pound of currants, two ounces of peel and two ounces of moist sugar and a pinch of mixed spice, mix into a stiff paste with one egg beaten up in a gill or more of milk. It should be so stiff a spoon will stand up in it. Bake in a greased tin one hour.

Baked Custard.—To the yolks of four eggs beaten lightly with a little sugar pour one pint of boiling milk, flavour to taste, line a dish with a little piece of pie-crust, pour in the custard, and bake three-quarters of an hour. A common one can be made of two whole eggs.

Bread Pudding.—Soak half a pound of pieces of bread in cold water, any crusts however stale will do, if you cut off the burnt, provided they are not mouldy. Squeeze them dry, and pour on them one quart of boiling milk. Cover, and let them swell. Beat up two eggs with two ounces of sugar, stir into the pudding, put in a quarter of a pound of plums or currants. Bake in a greased dish half an hour. This pudding can be boiled in a buttered basin. Time required two hours.

Sago, Tapioca, or Rice Pudding.—Soak two tablespoonfuls in a pint of milk, put it on to boil, stirring it to prevent its sticking; mix in (off the fire) one egg and one tablespoonful of sugar. Bake in a greased dish.

Materials required for Lesson :— $\frac{1}{2}$ qtn. flour, $\frac{1}{2}$ lb. of butter, $\frac{1}{2}$ lb. of meat, 2 qts. of milk, $\frac{1}{4}$ lb. of suet, $\frac{1}{4}$ lb. of plums, $\frac{1}{4}$ lb. of currants, $\frac{1}{2}$ lb. of moist sugar, 8 eggs, 2d. of bread, 2 oz. of peel, $\frac{1}{4}$ oz. of spice, 1 oz. of sago.

FOURTEENTH LESSON.

BOILED PUDDINGS.

Boiled puddings are generally shortened or made light with suet. Where people cannot eat suet, butter may be used in its place. Boiled puddings are lighter if boiled in a cloth, but easier to keep in shape if boiled in a basin; but they require a longer time to boil. It is most essential to keep a pudding cloth clean; it should be washed in two or three hot waters without soap immediately it is done with, wrung dry, and dried off quickly, or it will get a musty taste. Always put the saucepan of water on to boil before you begin to make a pudding.

Meat Pudding.—A quart basin holds two pounds of meat; a pound and a half of steak or beef skirts and half a pound of kidney makes a good pudding. Make a crust of half a pound of suet chopped fine, a pound of flour, a pinch of salt, a teaspoonful of baking powder mixed together, and sufficient cold

water to make a stiff paste. Cut off one-third for the cover. Roll the rest to a round twice the size of the top of the basin, grease the basin, and lay it neatly in. Fill it with the meat cut in slices, and seasoned with pepper and salt, pour in a little water, wet the edges of the paste, roll out the cover the proper size, lay it on, press the edges together, trim neatly. Dip the cloth in boiling water, flour it, tie it on, tie up the edges, and put it in boiling water. Let the pudding boil two hours and a half. It can be made commoner with one-third suet, or even a quarter instead of half.

Batter and Black Cap Puddings.—Eight ounces of flour, half a teaspoonful of baking powder, two eggs, a pint of milk. Mix the flour with the baking powder and a pinch of salt. Break the eggs into a cup, beat them lightly with a little of the milk, mix them by degrees quite smoothly into the flour so that there are no lumps, add the rest of the milk, grease a basin, pour the pudding in through a strainer, flour the cloth thickly after dipping it in boiling water, tie it securely, and boil gently for an hour and a half. Black cap pudding is made by throwing in a quarter of a pound of currants after the batter is in the basin.

Fruit and Roly-poly Puddings.—The crust for these should be the same as for meat puddings. Allow a quarter of a pound of sugar to a quart of fruit. For roly-poly, roll the crust out thin, cover it with jam, treacle, or currants, apple, and sugar; roll it up, tie in a cloth securely at each end, and boil an hour and a half.

Plum Pudding.—A quarter of a pound of suet chopped fine, a quarter of a pound of currants, a quarter of a pound of plums, a quarter of a pound of sugar, six ounces of flour, six ounces of bread crumbs, two ounces of peel, a gill of milk, two eggs, half a teaspoonful of baking powder. Mix thoroughly the dry things, beat the eggs lightly with the milk, add to them, dip a cloth in boiling water, flour it, tie in the pudding securely, leaving it room to swell, and boil two hours and a half.

Treacle Pudding.—One pound of flour, a teaspoonful of baking powder, a quarter of a pound of suet chopped fine, a quarter of a pound of treacle, an egg, a gill and a half of milk. Mix the dry ingredients, stir the egg and milk into the treacle and mix with them, pour into a greased basin, tie a well-floured cloth over, and boil two hours.

Materials required for Lesson:—2 lbs. of meat, 1 qtn. of flour, 1½ lb. of suet, six eggs, 2½ pts. of milk, ¼ lb. of plums, ½ lb. of currants, 2 oz. of peel, ½ lb. of sugar, 6 apples or jam, ¼ lb. of treacle, 1 pkt. of baking powder, 1 oz. of dripping or butter.

FIFTEENTH LESSON.

BREAD AND CAKES.

Home-made bread is at once more wholesome, and more satisfying than baker's bread ; it keeps fresh a longer time, it is eatable at the end of a week, when baker's bread is very dry.

To make a Quarter of Flour into Bread.—Take three pounds of flour, and put it into a dry pan. Mix one ounce of German yeast into a smooth paste with a little tepid water, and add by degrees more tepid water till you have a pint and three-quarters. Put a pinch of salt into a well in the middle of the flour, and strain it in gradually mixing it all smoothly into dough. Be careful not to leave dry lumps of flour. Sprinkle a little flour over, cover and set in a warm place for at least two hours to rise. Then turn it out on a well-floured board, and work in more flour. Make it into three loaves, bake on a well-floured tin, or in flat bread-tins. Half a pound of flour is required in making it up. In making large quantities of bread, only a small portion of the water is put in at first, and a small portion of the flour wetted, this is called setting or laying the sponge ; this rises for some hours, large batches are laid over-night ; when it has risen, more water is added, and the whole mixed up into dough ; potatoes are frequently added.

Unfermented Bread.—Unfermented, or unleavened bread is not much used. It has the advantage of being very quickly made. Take one pound of flour ; mix thoroughly with it one teaspoonful of baking powder, and half a teaspoonful of salt. Mix it with cold water, sufficient to make it into a light firm dough. Make it into two small loaves and bake immediately. Flour thus prepared is sold as self-raising flour.

Milk Rolls.—Rub two ounces of butter into one pound of self-raising flour, mix with milk into a light firm dough and bake immediately.

Plum Cake.—Eight ounces of flour, half a teaspoonful of baking powder, quarter of a pound of fruit, either currants, plums, or sultanas, or mixed, two ounces of sugar, two ounces of dripping rubbed into the flour ; mix in the other ingredients ; beat up one egg with a little milk, mix with the other ingredients ; cake should be so stiff a spoon would stand up in it. The quantity of milk required depends on the flour ; the egg and milk should be about a gill. Pour into a well greased tin and bake immediately.

Seed Cake.—Ten ounces of flour, two ounces of dripping, two ounces of sugar, one egg ; milk half a gill (or more), a teaspoonful of caraway seeds, a teaspoonful of baking powder. Mix the dry things together, beat the egg up with the milk, make it into a stiff paste and bake at once in a greased tin.

Rock Cakes.—Half a pound of flour, quarter of a pound of dripping, quarter of a pound of currants, quarter of a pound of sugar, two ounces of peel, a little grated nutmeg, one egg, three quarters of a gill of milk, two teaspoonfuls of baking powder. Rub the dripping into the flour, mix all the dry things together, beat up the egg lightly in a cup with the milk, mix all together, lay in little heaps on a greased tin, and bake in a quick oven.

Rice Buns.—Quarter of a pound of ground rice, quarter of a pound of sugar, two ounces of butter, two eggs, half a teaspoonful of baking powder. Beat all well together, and bake in greased patty pans.

Materials required for Lesson :—2 qtns. of flour, 1 oz. of yeast, $\frac{1}{4}$ lb. of ground rice, 1 lb. of self-raising flour, $\frac{1}{2}$ lb. of dripping, $\frac{1}{4}$ d. of caraway, $\frac{1}{4}$ lb. of butter, $2\frac{1}{2}$ d. of milk, $\frac{3}{4}$ lb. of sugar, 5 eggs, $\frac{1}{2}$ lb. of fruit, 2 oz. of peel.

SIXTEENTH LESSON.

INVALID COOKERY.

Invalid cookery is one of the most important and most neglected branches of the art. Good food is as essential to the sick as good physic ; many a valuable life has been lost for want of proper food during recovery from sickness. When necessary articles of diet for the sick room are to be given rests with the doctor ; in the earlier stages of illness, particularly fevers, little food is required, the patient loathes it, and to press beef-tea, &c., on a sick stomach, is positively injurious ; refreshing drinks are chiefly what the patient requires. Perfect cleanliness and freshness are most essential to invalid cookery. Don't make beef-tea, lemonade, &c., enough for two or three days, to save yourself trouble, and don't let the patient see you taste with a spoon, and put it into the food again.

Beef Tea (Liebig's).—Chop a pound of lean beef as fine as sausage meat ; pour on it a pint of cold water, let it soak ; put it over a slow fire, when it has boiled five minutes pour it off.

Beef Tea.—Cut up one pound of lean beef ; (beef skirts or gravy beef are best for beef-tea) ; put it in a stone jar with one

pint of cold water and a shank bone of mutton if you have one; cover it closely and set in a saucepan of boiling water, or in a slow oven three hours.

Raw Beef Tea (for Typhoid Fever).—Two ounces of lean gravy beef, two tablespoonsful of cold water. Chop the meat very fine; let it stand quarter of an hour in the water, then pour off the liquid. Make no more than this at one time, as it will not keep.

Mutton Broth.—Two pounds of scrag of mutton put into a saucepan with three pints of water and a little salt. Let it simmer gently two hours. Strain through a sieve; when cold remove every particle of fat; it can be thickened with arrowroot or ground rice. The mutton is good to eat with parsley and butter.

Toast and Water.—Toast a crust of bread till it is of a light brown on all sides; plunge it into a pint of cold water, and let it stand covered half an hour.

Irish or Iceland Moss.—Wash Irish moss, and let it soak all night; dry it and boil it, one ounce in a quart of water till reduced to one half. Strain through a sieve. Take the jelly with milk, or wine, flavoured to taste. The moss can be boiled in milk and put in a shape.

Barley Water.—Boil one ounce of pearl barley in one quart of water twenty minutes, sweeten to taste. A second quart of water boiled with the same barley is better than the first. A bit of lemon rind improves it.

Bran Tea.—Pour one quart of boiling water on three tablespoonfuls of middling sized bran, let it stand a quarter of an hour; sweeten with sugar or honey.

Lemonade.—Peel a lemon very thinly, remove all the white pith, part the rind into a jug with the lemon cut in slices; pour over it half a pint of boiling water. Cover till cool. Sweeten to taste.

Wine Whey or Treacle Posset.—Into half a pint of boiling milk pour half a gill of wine or treacle; let it stand five minutes; pour off the whey.

Materials required for Lesson.— $\frac{3}{4}$ lb. of gravy beef, 2 lbs. of mutton, 1d. of bread, 1 oz. of Irish moss, 1 oz. of barley, $\frac{1}{4}$ lb. of bran, 1 lemon, $\frac{1}{2}$ pint of milk, $\frac{1}{2}$ gill of treacle.

SEVENTEENTH LESSON.

FARINACEOUS FOODS.

Maccaroni with Cheese.—Wash a quarter of a pound of maccaroni broken into short pieces. Put it into a large saucepan of cold water, with a teaspoonful of salt. Boil it for about three quarters of an hour, or until it is soft. Then strain off the water. Melt one ounce and a half of butter in a small saucepan, stir in one ounce of flour, then add by degrees half pint of milk, pepper and salt, and stir it over the fire till it boils and thickens, then add one ounce of strongly flavoured grated cheese, stir in the maccaroni, then spread it out on a flat dish and sprinkle over it another ounce of cheese, and brown the top in a quick oven or before the fire.

Maccaroni Pudding or Sweet Maccaroni.—Quarter of a pound of maccaroni, two eggs, one pint and a half of milk, two ounces of sugar. Wash the maccaroni, let it boil gently in plenty of water with a little salt in half an hour; strain it off, put in the milk and let it boil half an hour, with a little piece of cinnamon or bayleaf in. Beat up the eggs lightly with the sugar, pour the milk off the maccaroni to them, grease a pie-dish, lay in the maccaroni, pour the custard over and bake in a quick oven half an hour.

Maccaroni Stewed in Stock.—Boil quarter of a pound of maccaroni as before in salt and water half an hour, with an onion cut in slices, strain off the water, pour in one pint of stock or broth, pepper and salt to taste, let it simmer one hour, lay it in a dish, sprinkle bread crumbs over, and brown in front of the fire.

Semolina.—Semolina is coarsely ground wheat, and is very nutritious. Boil one tablespoonful in half a pint of milk, ten minutes, stirring all the time, sweeten with one dessertspoonful of powdered white sugar; it can be eaten hot, or put in a shape to turn out when cold. To make it into a pudding, add one egg lightly beaten and bake fifteen minutes. While many other farinaceous puddings are chiefly starch, and valuable principally for the eggs and milk in them, semolina is of itself highly nutritious.

Hominy.—Wash it in two or three waters, pour boiling water on it, and let it stand all night. Take it out and put it in a saucepan, one quart of hominy to two of water, and boil four or five hours till quite soft. Drain it, put it into a deep dish, and stir in some butter. If any is left cold, cut it in slices and fry it.

Maize Flour Porridge or Polenta.—Drop two tablespoonfuls of maize flour into a pint of boiling water and salt, stirring all the time until it is of the consistency of pea-soup.

Corn Flour Pudding.—Corn flour is the starch of Indian corn. To make a pudding of it, mix four tablespoonfuls of corn flour and three of sugar with a very little milk. Put on one quart of milk to boil, when it boils pour in the mixture and add three eggs well beaten. Bake in a greased pie-dish.

Blancmange.—Mix four tablespoonfuls of corn flour with a little milk ; put one quart of milk with three tablespoonfuls of sugar in it, on to boil, when it boils pour in the corn flour, let it boil two minutes, wet a mould with cold water, pour in the mixture.

Materials required for Lesson :— $\frac{3}{4}$ lb. of maccaroni, 2 oz. of cheese, 6 eggs, 7 pts. of milk, $\frac{1}{2}$ lb. of sugar, 2 oz. of semolina, 1 pt. of stock, 1 qt. of hominy, 2 oz. of maize flour, $\frac{1}{2}$ lb. of corn flour, 2 oz. of butter.

EIGHTEENTH LESSON.

CHEAP SAUCES.

Melted Butter.—Put one ounce of butter in a stewpan, when it is melted put in half an ounce of flour, stir it quite smooth over the fire, and pour in by degrees half a pint of water. Stir till it thickens, then move it to the side of the fire. This recipe will never fail to produce good melted butter free from lumps. If you cannot afford so much butter use less ; but never put more flour than butter. Melted butter too often resembles paste.

Parsley and Butter is made by stirring a teaspoonful of chopped parsley into the above just before serving.

Egg Sauce is melted butter made with milk instead of water, and an egg boiled ten minutes and allowed to get cool chopped up and put into it.

Bread Sauce is made by soaking an ounce and a half of bread crumbs in half a pint of milk a quarter of an hour; putting it on to boil fifteen minutes, with an onion, six peppercorns, and a pinch of salt in. Before serving, pick out the onion and the peppercorns.

Mint Sauce.—Wash clean and chop fine a handful of mint without the stalks, dissolve half an ounce of sugar in half a gill of water, add to it one gill of vinegar and the chopped mint, mix well together.

Onion Sauce.—Parboil the onions in water, strain them off, cover them with milk, and let them boil gently half an hour, strain the milk off, chop the onions fine, put half an ounce of

butter into the saucepan, when melted stir smoothly in half an ounce of flour, add by degrees the milk, stir it till it thickens, then add the onions, and let it boil up.

Apple Sauce.—Pare four apples, quarter and core them, put them into a saucepan with a very little water, and sugar to taste. Boil gently till reduced to a smooth pulp, stirring occasionally.

Sweet Sauce, for Puddings, &c.—Put on half a pint of water to boil, mix one dessertspoonful of arrowroot or corn-flour and one of sugar with a little cold water, flavour with a tablespoonful of jam or marmalade, or a few drops of vanilla or a glass of wine, pour it into the boiling water and strain over the pudding. It can be coloured with cochineal.

Cow-heel Jelly.—Take a cow-heel ready dressed (*i.e.* from the tripe shop), and boil it in three pints of water six hours. When cold, remove all the fat, put the jelly in a stewpan with the juice of two lemons and the rind of one, two ounces of sugar and the white and shell of one egg slightly beaten, and a little spice if the invalid likes it. A little saffron, five or six threads, gives it a nice colour. Let it boil up, stirring all the time, place it on one side twenty minutes, then strain it through a cloth till clear. The foot itself is good either hot with onion sauce, or cold.

Materials required for Lesson :— $\frac{1}{4}$ lb. of butter, parsley, $\frac{1}{4}$ lb. of flour, 1d. of bread, 3 onions, 3 apples, $\frac{1}{4}$ lb. of sugar, 2 eggs, 1 oz. of arrowroot, mint, $\frac{1}{2}$ gill of vinegar, cow-heel, 2 lemons, saffron, jam.

NINETEENTH LESSON.

CHEAPEST DISHES WITHOUT MEAT.

Crowdie.—The liquor in which a leg of mutton has been boiled, half a pint of oatmeal, pepper and salt, two onions cut very fine. Make the oatmeal into a paste with a little of the liquor over the fire, stir in the remainder, and let it boil gently twenty minutes.

Savoury Rice.—Put half a pound of rice into two pints and a half of cold water, boil it gently two hours, then add one pint of skim milk and two ounces of strong cheese grated, a little pepper and salt, and boil very gently another hour.

Rice Pudding.—Tie half a pound of rice in a pudding cloth so loose as to be able to hold five times as much. Let it boil gently till it fills the bag. Turn it out and pour two ounces of treacle over it.

German Pea Soup.—Take half a German pea-soup sausage, six pints of boiling water, grate the sausage, mix into a smooth paste with a little cold water. When the water boils, pour it in and stir smooth. It requires no more cooking.

Dr. Kitchener's Broth.—Four ounces of Scotch barley, four ounces of sliced onions, two ounces of dripping, four ounces of bacon, four ounces of oatmeal, pepper and salt. Put the barley, previously soaked, and the onions into five quarts of liquor. Let it boil gently one hour. Put into a saucepan the bacon and dripping, and fry brown. Stir in by degrees the oatmeal till it is a paste, then stir in the broth, and season to taste. Let it simmer half an hour.

Milk Soup.—Four large potatoes, two leeks, two ounces of butter, three tablespoonfuls of crushed tapioca, one pint of milk. Put the potatoes and leeks, cut in four, in a saucepan, with two quarts of boiling water and two ounces of butter, a teaspoonful of salt, and pepper to taste. Boil an hour, rub through a colander, and return it to the saucepan, add the milk, sprinkle in the tapioca, and let it boil fifteen minutes.

Hariots.—The seeds of the French bean are very nutritious. Soak them all night. Put them on in plenty of water, let them boil till tender three or four hours, strain, and eat with parsley and butter.

Potato Cake.—A pound of cold potatoes, a quarter of a pound of flour or oatmeal, half a gill of warm milk (with a quarter of an ounce of yeast dissolved in it, if you have it), a little salt and butter. Mash the potatoes, add the other things, roll out the paste an inch and a half or two inches thick, lay it in a greased tin and bake it.

Materials required for Lesson :—1 lb. of rice, $\frac{3}{4}$ pt. of oatmeal, 6 onions, 2 oz. of cheese, milk, 2 oz. of treacle, $\frac{1}{2}$ German pea soup stick, 4 oz. of barley, 4 oz. of bacon, 2 leeks, $1\frac{1}{2}$ lb. of potatoes, $\frac{1}{4}$ lb. tapioca, 3 oz. of butter, 1 pt. haricots, $\frac{1}{4}$ lb. of dripping.

TWENTIETH LESSON.

CHEAPEST DISHES WITH MEAT.

Sheep's Head and Pluck.—Thoroughly clean the head, put it into a saucepan with three pints of cold water, a cupful of rice, four onions sliced, and a little salt. Set it on a slow fire to cook very gently, skim it when it boils, and put in two carrots and

two turnips cut in quarters. Let it simmer two hours. A quarter of an hour before serving, carefully skim off all the fat, and season to taste with a little pepper and salt. The liver may be fried, and the heart stuffed and baked, or both may be stewed together in one pint of water (after being browned in the saucepan with an ounce of dripping) for one hour, the gravy to be thickened with half an ounce of flour.

Irish Stew.—This is a way of economizing meat by cooking it with a large quantity of potatoes. It is best made of fat meat—the ends of the neck of mutton and the scrag do very well. Lay in a saucepan layers of mutton and potatoes and onions cut in slices, seasoned to taste, pour over a very little water, and let it stew two or three hours. Many people, considering the water in which potatoes are boiled unwholesome, boil the potatoes partially, throw away the water, cut them up or mash them, and then lay them in layers with the meat as above.

Pot-au-feu.—The French national dish, and a most economical one. Take four pounds of the sticking piece, round, or ox-cheek, tie it tightly round with string, put it into a pot with eight pints of cold water. Let it come slowly to a boil, then put into it any vegetables in season (except green ones), say two leeks, two onions, two carrots, two turnips, two parsnips, a piece of celery, a bunch of herbs, twenty peppercorns, a teaspoonful of salt. Let it simmer four hours. The vegetables are best put in a net or tied in bundles. If you put in any cabbage it must be a white one tied tightly together, or it will boil to pieces. For serving, the meat is put on a dish with the vegetables round it; and the soup is thickened with sago, corn-flour, or tapioca, boiled in it a few minutes.

German Potatoes.—Choose large potatoes, scrub them clean, cut a slice off the top, scoop out a hole in the middle, fill it with half a sausage, put the top on again, and bake in a moderate oven.

Materials required for Lesson :—Sheep's head and pluck, 4 lbs. of ox-cheek, neck of mutton, $\frac{1}{2}$ lb. sausages, peppercorns, 4 lbs. of potatoes, 6 onions, 2 leeks, 2 carrots, 1 parsnip, $\frac{1}{2}$ celery, herbs, parsley.

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